

PRESS RELEASE



of the International Bremia Evaluation Board Europe (IBEB-EU)

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Two new races of *Bremia lactucae*, BI: 34EU and BI: 35EU identified and nominated in Europe

The International Bremia Evaluation Board Europe (IBEB-EU) has evaluated hundreds of Bremia isolates found in European lettuce in 2016 and 2017. The majority of isolates belonged to local races. Only two races were able to spread over large distances to different lettuce production areas. Two representative isolates were denominated BI: 34EU and BI: 35EU. The Board emphasizes the importance of chemical control and hygiene measures in addition to the use of resistant varieties to prevent the development of new races.

Bremia lactucae, the causal agent of downy mildew in lettuce, is genetically very variable. Even within one lettuce production field, several races may be present. The IBEU met in November 2017 in Paris to evaluate the 1020 *Bremia lactucae* isolates found in Europe in 2016 and 2017. In 2017 the most widely spread race was BI: 33EU. This race was present in 17% of the samples and is widely spread over Europe. Other recently denominated races, like BI: 29EU, BI: 31EU and BI: 32EU, were found in lower frequency.

Many of the isolates encountered in 2016 and 2017 were new races. Most of these new races were found only once or a few times in the same region, indicating epidemic outbreaks with probably only local significance. However, two isolates already found in previous years appeared to spread more widely. The virulence patterns of these two isolates were found in 25% of all isolates.

A formal evaluation process started in November 2017. In April 2018 the IBEU concluded that the two candidate isolates gave consistent test results, and decided to denominate two races:

BI: 34EU (EU-C 54-15-01 , isolate NL15-073)
BI: 35EU (EU-C 62-15-06, isolate 480)

BI: 34EU is widely spread in Europe and is found in France, Germany, the Netherlands, the UK, Austria, Switzerland, Italy, Spain, Portugal and Scandinavia.

BI: 35EU is found predominantly in France but has also spread over other countries in Europe like S-Netherlands, S-United Kingdom and SW-Germany. This race may be described as a more aggressive variant of BI: 33EU, able to break additional resistance sources and spreading in the same areas as BI: 33EU.



Occasionally, isolates with only local significance are causing serious problems. This type of isolate diversity complicates the official denomination of all important Bremia isolates. The trend towards more local epidemics seems to be related to the successful introduction of an increasingly wide range of resistance genes by the breeding companies. Therefore, the board emphasizes that, although breeding companies supply growers with lettuce varieties possessing resistance to the nominated BI: 16-35EU races, this is not a full insurance against Bremia.

The board also emphasizes the importance of chemical control and hygiene measures in addition to plant resistance. Fungicide application, especially in a young plant stage, gives additional protection to resistant lettuce crops, which will help prevent the development of new Bremia races. Proper hygiene practices, such as removal of debris and diseased plants, will reduce the spread of Bremia in lettuce crops.

Please note that a new differential set, called the EU-C set, is in use since March 2016 and that the sextet codes are different since the nomination of BI: 33EU. The EU-B set is no longer used in official tests.

Further information on the differential set and sextet codes is available through the ISF website: <http://www.worldseed.org/our-work/plant-health/other-initiatives/ibeb/>

IBEB-EU consists of representatives of the Dutch and French seed business associations Plantum NL and UFS, and the independent organisations GEVES/SNES and Naktuinbouw. IBEB is supported by several Bremia researchers across Europe. Lettuce breeders of Bejo Zaden, Enza Zaden, Gautier, Nunhems, Rijk Zwaan, Monsanto, Syngenta and Vilmorin represent the business associations.

All denominated isolates and seeds of the EU-C determination variety set are available at GEVES/SNES (France) and at Naktuinbouw (The Netherlands).

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