

# the power of **breeding**



ENZA ZADEN



## Resistance to Bl:28

Professional lettuce growers in today's world are confronted with more and more disease pressure, allowed to use less preventative chemicals but required to grow product for ever higher market standards. Being passionate lettuce breeders, we understand that our customers are doing their utmost to grow products which can meet with the highest market demands. For this reason Enza Zaden offers a wide range of solid varieties with excellent field performance, outstanding post harvest quality and high levels of disease resistance.

In this leaflet, we present to you our lettuce varieties with resistance to the newest Bremia strain Bl: 28. In combination with your usual preventive treatments, these varieties ensure a high level of protection leading to a successful lettuce production.

*Bremia lactucae*, or downy mildew in lettuce, is very variable. Even within one lettuce production field several Bremia races may be present. Besides the officially nominated strains, Bl:1-28, many less frequent occurring races are present in nature. Although Enza Zaden is offering growers lettuce varieties with resistance to the nominated Bl:1-28 isolates, it is not a full insurance against Bremia. Enza Zaden emphasizes the importance of chemical control and hygiene measures in addition to plant resistance. Fungicide application (especially in a young plant stage) in combination with the best possible genetic resistance will help to prevent the development of new Bremia races. Proper hygiene practices, such as removal of infected plants and/or leaf material before and after harvest and cleaning material and equipment after field visits, will reduce the spread of Bremia in lettuce crops.



## Greenhouse types

Friendly	HR: Bl:1-26,28	Batavia	Fenston	HR: Bl:1-28	Butterhead
Kismy	HR: Bl:1-26,28	Batavia	Hilton	HR: Bl:1-25,27,28	Butterhead
Bertina	HR: Bl:1-25,27,28,Nr:0	Batavia	Trinette	HR: Bl:1-28	Butterhead
Flavy	HR: Bl:1-16,18-20,22-25,27,28	Batavia	Heathrow	HR: Bl:1-28	Curly green
	IR: LMV:1		Housay	HR: Bl:1-16,18-24,27,28	Little Gem
Frizella	HR: Bl:1-28   IR: LMV:1	Batavia	Orsay	HR: Bl:1,4-26,28   IR:LMV:1	Little Gem
E 11.3639	HR: Bl:1,4-16,18-26,28	Butterhead	Vailan	HR: Bl:1-5,7-10,15-21,23-26,28/Nr:0	Little Gem
Tonya	HR: Bl:1-26,28	Butterhead	Titouan	HR: Bl:1-28/Nr:0	Red Oakleaf
Brighton	HR: Bl:1-28	Butterhead	Dexan	HR: Bl:1-28/Nr:0	Red Oakleaf



## Butterhead

Adrienne	HR: Bl:1-26,28/Nr:0   IR:LMV:1	Red Butterhead	Clarion	HR: Bl:1-12,17,18,22,24,25,28   IR: LMV:1
Laurenzio	HR: Bl:1-26,28/Nr:0   IR:LMV:1	Red Butterhead	E 13.0368	HR: Bl:1-26,28/Nr:0   IR: LMV:1
Aljeva	HR: Bl:1-22,24,25,28/Pb/Nr:0		Lobela	HR: Bl:1-28/Nr:0   IR: LMV:1
	IR: LMV:1		Ovation	HR: Bl:1-12,17,18,22,24,25,28   IR: LMV:1
Analena	HR: Bl:1-25,27,28/Nr:0   IR: LMV:1		Palomino	HR: Bl:1-24,27,28/Nr:0   IR: LMV:1
Bolena	HR: Bl:1-25,27,28/Nr:0/Pb   IR: LMV:1		Pronto	HR: Bl:1-24,27,28   IR: LMV:1



## Batavia

Beldy	HR: Bl:1-16,18-24,27,28   IR: LMV:1		Follomy	HR: Bl:1-24,27,28/Nr:0   IR: LMV:1
Bonaly	HR: Bl:1-28/Nr:0   IR: LMV:1		Frisady	HR: Bl:1-20,22-24,27,28   IR: LMV:1
Bovary	HR: Bl:1-28/Nr:0   IR: LMV:1		Malice	HR: Bl:1-16,18-24,27,28   IR: LMV:1
Caipira	HR: Bl:1-26,28/Nr:0   IR: LMV:1		Marady	HR: Bl:1-20,22-24,27,28   IR: LMV:1
Corany	HR: Bl:1-26,28/Nr:0		Maritima	HR: Bl:1-28/Nr:0   IR: LMV:1
Estony	HR: Bl:1-24,27,28/Nr:0   IR: LMV:1		E 15.4005	HR: Bl:1-28/Nr:0   IR: LMV:1

# Romaine


Conchita	HR: BI:1,4-21,23-26,28/Pb
Coventry	HR: BI:1,4-21,23-26,28/Pb   IR:LMV:1
Maureen	HR: BI:1,4-21,23-26,28
Totana	HR: BI:1-28/Nr:0   IR:LMV:1
Ortigia	HR: BI:1-25,27,28   IR:LMV:1
Velvet	HR: BI:1,4,6,12,17,18,22,24,25,28

- Little Gem*
- Little Gem*
-  *Little Gem*
-  *Romaine*
- Romaine*
- Romaine*



# Babyleaf










Capsule	HR: BI:1-28   IR:LMV:1
Oaking	HR: BI:1-28/Nr:0   IR:LMV:1
Greenoak	HR: BI:1-28
Redlo	HR: BI:1-26,28
Chistera	HR: BI:1-16,18-24,27,28
Diablotin	HR: BI:1-28
Redbat	HR: BI:1,4-26,28
Sadawi	HR: BI:1-28/Nr:0
Balesta	HR: BI:1,4,21,23-26,28
Cosni	HR: BI:1-16,18-21,23-26,28
Ovired	HR: BI:1-16,18-21,23-26,28
Redza	HR: BI:1-16,18-21,23-26,28

- Green Oakleaf*
-  *Green Oakleaf*
- Green Oakleaf*
-  *Lollo Rossa*
- Red Batavia*
-  *Red Batavia*
-  *Red Batavia*
-  *Red Oakleaf*
- Romaine*
- Romaine Red*
-  *Romaine Red*
-  *Romaine Red*



# Leaf lettuce

Ezmina	HR: BI:1-26,28/Nr:0
Hardy	HR: BI:1-13,17,18,22,24,25,28/Nr:0   IR:LMV:1
Nasir	HR: BI:1-26,28/Nr:0   IR:LMV:1
Palmir	HR: BI:1-21,23-26,28/Nr:0   IR:LMV:1
Kolka	HR: BI:1-26,28/Nr:0
Feska	HR: BI:1-26,28/Nr:0
Tuska	HR: BI:1-26,28/Nr:0
Bellatrix	HR: BI:1-28/Nr:0   IR:LMV:1
Cantarix	HR: BI:1-26,28/Nr:0
Starix	HR: BI:1-26,28/Nr:0
Rojoble	HR: BI:1-26,28
Solix	HR: BI:1-16,18-24,28

-  *Eazyleaf red* 
-  *Green Oakleaf*
- Green Oakleaf*
-  *Green Oakleaf*
- Lollo Rossa*
-  *Lollo Rossa*
-  *Lollo Rossa*
-  *Red Oakleaf*
- Red Oakleaf*
-  *Red Oakleaf*
- Red Oakleaf*
-  *Red Oakleaf*



# Iceberg northern types

E 14.1452	HR: BI:1-28
E 14.3119	HR: BI:1-28
Cellist (E 14.3790)	HR: BI:1-28/Nr:0





[www.enzazaden.com](http://www.enzazaden.com)

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HR: High Resistance | IR: Intermediate Resistance

Viruses: LMV:1: Lettuce Mosaic Virus. Bacteria: Rs: Rhizomonas suberfaciens. Fungi: Bl: Bremia lactuae. Insects: Nr: Nasonovia ribisnigri, Pb: Pemphigus bursarius.

## Resistance

### Terminology and definitions

a) 'Immunity' means not subject to attack or infection by a specified pest or pathogen.

b) 'Resistance' is the ability of a plant variety to restrict the growth and development of a specified pest or pathogen and/or the damage they cause when compared to susceptible plant varieties under similar environmental conditions and pest or pathogen pressure. Resistant varieties may exhibit some disease symptoms or damage under heavy pest or pathogen pressure.

Two levels of resistance are defined:

I. **High resistance (HR)**: plant varieties that highly restrict the growth and development of the specified pest or pathogen under normal pest or pathogen pressure when compared to susceptible varieties. These plant varieties may, however, exhibit some symptoms or damage under heavy pest or pathogen pressure.

II. **Intermediate resistance (IR)**: plant varieties that restrict the growth and development of the specified pest or pathogen, but may exhibit a greater range of symptoms or damage compared to highly resistant varieties. Intermediately resistant plant varieties will still show less severe symptoms or damage than susceptible plant varieties when grown under similar environmental conditions and/or pest or pathogen pressure.

c) 'Susceptibility' is the inability of a plant variety to restrict the growth and development of a specified pest or pathogen.

### Information per variety

Resistances in varieties of our crops will be coded (see coding list at [www.enzazaden.com](http://www.enzazaden.com)), unless indicated otherwise. In case a variety is resistant to more than one pathogen, the individual resistance codes will be separated by the symbol ' / '.

If in a resistance code of a certain variety reference is made to certain strains for which the resistance is claimed this means that no resistance is claimed to other strains of the same pathogen.

If, in a resistance code, no reference is made to strains of the pathogen for which the resistance is claimed, resistance is claimed only to certain not further specified strains of the pathogen and we hereby disclaim any guarantee that the variety will not be infected by the said pathogen.

Descriptions, recommendations and illustrations in brochures and leaflets shall correspond as closely as possible to tests and practical experience. This information shall be provided to assist professional growers and users, whereby variable local conditions must be taken into account. Under no circumstances shall Enza Zaden accept liability based on such information for deviating results in the cultivated product. The Purchaser shall itself determine whether the items are suitable for the intended cultivation and whether they can be used under local circumstances.

Current information concerning the resistances is available on [www.enzazaden.com](http://www.enzazaden.com).