

## Viral Disease Resistance of Domestic Barley Variety and Estimated Damage

Jong-Chul Park\*, Mi-Ja Lee, Chul Soo Park, Tae-Hwan Noh, Jong-Gon Kim

Honam Agricultural Research Institute, National Institute of Crop Science, Iksan 570-080, Korea

---

### Objectives

Evaluation of viral disease resistance of domestic barley variety and estimation of the barley damage on the different resistance level

### Materials and Methods

- Materials
  - 75 barley varieties : naked and hulled (malting beer) barley
  - For damage estimation : 3 different resistance variety, Naehan, Baegdong and Saessal
- Methods
  - Seeding : Disease infested field and healthy fields(for damage investigation)
  - Period : two years (2004 to 2005)
  - Diseased degree investigation : scoring by degree of symptom manifestation
  - Diagnosis : ELISA to BaYMV, BaMMV and SBWMV
  - Barley growth and yield estimation : plant height, yield components and yield

### Results and Discussion

- Only 8 variety showed resistance in field and ELISA test for two years investigation such as Donghanchal, Gwangwhal, Namho and Naehan, naked barley, and Milyanggeot, Saeal and Tapgol in hulled barley.
- In ELISA diagnosis, BaYMV was dominant and showed mixed infection with BaMMV.
- Plant height was restrained about 11~12cm in susceptible and medial comparing to resistant
- Yield potentials of susceptible and medial reduced by 35 and 63%, respectively in the disease infested field.
- From this study, barley damage caused by viral disease may be predicted on the basis of the level of resistance, diseased degree and symptoms of barley varieties.

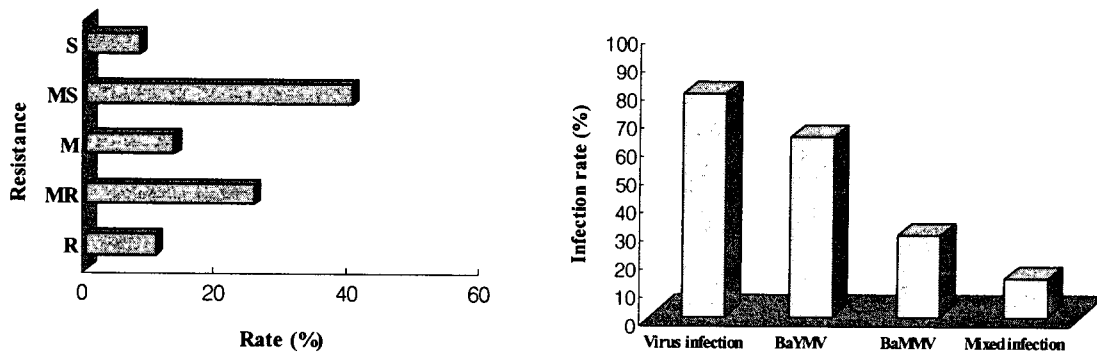


Fig 1. Resistance distribution of the domestic variety (left) and the kinds of infected viruses (right). These degrees scored by field test and ELISA diagnosis.

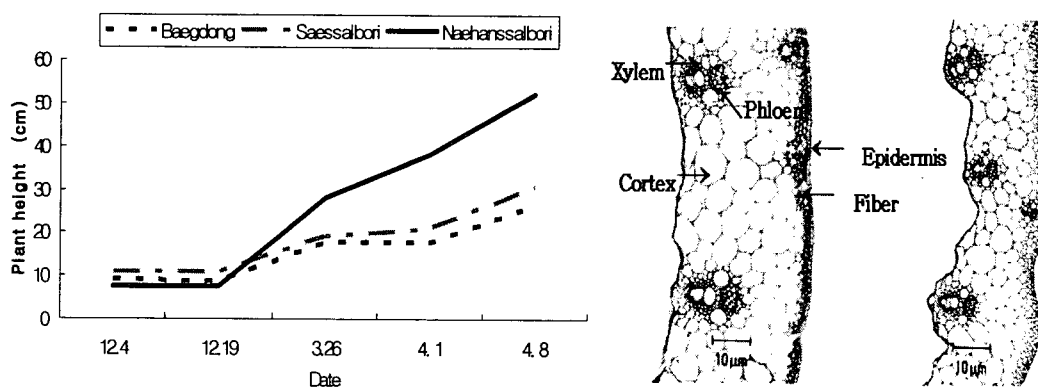


Fig. 2. Damage of plant height with different resistance level on resistant, Naehan, medial, Saessal, and Susceptible, Baegdong, in the disease infested (left) and cytological damage of stem (right) of Baegdong on healthy (left) and diseased plant (right).

Table 2. Comparisons of yield components with different resistance level in the disease infested (DF) and non-infected (NF) fields

Resistance	Heading date (Month. date)		No. of spike (per m <sup>2</sup> )		Culm length (cm)		No. of kernel (per spike)		Yield (kg/10a)	
	DF	NF	DF	NF	DF	NF	DF	NF	DF <sup>**</sup>	NF <sup>ns</sup>
Resistant (Naehan)	4. 27	4. 26	436	497	96.8	92.3	48.3	47.0	391	393
Medial (Saessal)	4. 28	4. 24	429	533	53.6	61.7	57.7	52.0	283	405
Susceptible (Baegdong)	5. 6	4. 30	156	369	31.5	67.0	62.0	65.0	103	340

<sup>ns</sup> and <sup>\*\*</sup> mean no and significant differences at 0.01 probabilities, respectively.