

Technical Working Party for Vegetables

TWV/60/4

**Sixtieth Session
Pacific Grove, United States of America, May 18 to 21, 2026**

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PARTIAL REVISION OF THE TEST GUIDELINES FOR CUCUMBER, GHERKIN

Document prepared by an expert from the Netherlands (Kingdom of the)

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1. The purpose of this document is to present a proposal for a partial revision of the Test Guidelines for Cucumber, Gherkin (document TG/61/7 Rev. 3).
2. The Technical Working Party for Vegetables (TWV), at its fifty-ninth session¹, agreed that the Test Guidelines for Cucumber, Gherkin (*Cucumis sativus* L.) be partially revised (see document TWV/59/19 “Report”, annex IV).
3. The following changes are proposed:
 - (a) Addition of new Characteristic 52 “Resistance to *Cucumber green mottle mosaic virus* (CGMMV)” at the end of the Table of Characteristics
 - (b) Addition of an explanation Ad. 52 “Resistance to *Cucumber green mottle mosaic virus* (CGMMV)” in Chapter 8.2 “Explanations for individual characteristics”

Proposed addition of new Characteristic 52 “Resistance to *Cucumber green mottle mosaic virus* (CGMMV)” at the end of the Table of Characteristics

	English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
52. VS (+)	Resistance to <i>Cucumber green mottle mosaic virus</i> (CGMMV)	Resistance au <i>Cucumber green mottle mosaic virus</i> (CGMMV)	Resistenz gegen <i>Cucumber green mottle mosaic virus</i> (CGMMV)	Resistencia a <i>Cucumber green mottle mosaic virus</i> (CGMMV)		
QN	absent or very low	absente ou faible	fehlend oder gering	ausente o baja	Topspin	1
	medium	moyenne	mittel	media	Bonaire, Bluesbrother	2
	high	élevée	hoch	alta		3

¹ held via electronic means, from May 5 to 8, 2025.

Proposed addition of an explanation Ad. 52 “Resistance to *Cucumber green mottle mosaic virus (CGMMV)*” in Chapter 8.2 “Explanations for individual characteristics”

Ad. 52: Resistance to *Cucumber green mottle mosaic virus (CGMMV)*

1.	Pathogen	<i>Cucumber green mottle mosaic virus (CGMMV)</i>
2.	Quarantine status	-
3.	Host species	<i>Cucumis sativus</i> L.
4.	Source of inoculum	Naktuinbouw (NL) ²
5.	Isolate	e.g. nt280 Other validated isolates may be used, as long as producing the same results on the differential set.
6.	Establishment isolate identity	Resistant and susceptible controls
7.	Establishment pathogenicity	Test on susceptible plants
8.	Multiplication inoculum	
8.1	Multiplication medium	Living plants
8.2	Multiplication variety	Susceptible variety e.g. Topspin
8.3	Plant stage at inoculation	Cotyledon or first leaf (ca. 7 days old)
8.4	Inoculation medium	PBS 0,01 M
8.5	Inoculation method	Rubbing cotyledons with abrasive added to buffer
8.6	Harvest of inoculum	Soon after the symptoms appear (ca. 14 days after inoculation), first true leaves
8.8	Shelf life/viability inoculum	Fresh longer than 1 day, desiccated longer than 1 year
9.	Format of the test	
9.1	Number of plants per genotype	At least 30 plants
9.2	Number of replicates	Preferably 3 replicates
9.3	Control varieties	Resistance absent or very low: Topspin Resistance medium: Bonaire (minimum resistance level), Bluesbrother. Bluesbrother has higher resistance than Bonaire
9.4	Test design	3 replicates of 10 plants including 2 blanks per replication which are mock inoculated
9.5	Test facility	Glasshouse or climate room
9.6	Temperature	24/22°C day/night
9.7	Light	At least 12 hours
10.	Inoculation	
10.1	Preparation inoculum	1 g leaf with symptoms with 10 ml 0,01 M PBS or similar buffer. Homogenize, add abrasive to buffer (1 g/30 ml)
10.3	Plant stage at inoculation	Cotyledon (ca. 7 days old plant)
10.4	Inoculation method	Gentle rubbing with abrasive added to buffer
10.5	First observation	2 weeks after inoculation
10.6	Second observation	3 weeks after inoculation
10.7	Final observations	When Topspin has symptoms predominantly in class 5
11.	Observations	
11.1	Method	Visual observation of top leaves
11.2	Observation scale	Class 1) No virus symptoms Class 2) Isolated yellow spots Class 3) Mild, localized lesions Class 4) Wide distribution of mosaic and mottling and/or blistering Class 5) Strong mosaic, yellowing, distortion of leaf shape and/or blistering

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Class 1: no symptoms



Class 3: mild, localized lesions



Class 5: strong mosaic, yellowing, distortion of leaf shape and/or blistering

11.3	Validation of test	<p>Validation on controls. Expected response of controls:</p> <ul style="list-style-type: none"> ▪ Susceptible control: -most plants in classes 4 and 5, as Topspin. ▪ Medium resistant controls: -most plants in classes 1,2 and/or 3 as Bonaire, Bluesbrother. The presence of Bluesbrother (and not only Bonaire) is necessary to validate the aggressiveness of the test. Resistance in Bluesbrother should be stronger than in Bonaire. ▪ Resistant control: -most plants in classes 1 and 2
12.	Interpretation of data in terms of UPOV characteristic states	<p>[1] absent or very low: distribution of plants in the classes comparable with the susceptible control [2] medium: distribution of plants in the classes comparable with the medium resistant controls [3] high: distribution of plants in the classes comparable with the high resistant control, which does not exist yet</p> <p>A variety with a lower level of resistance than Bonaire (note 2), will be described as note 1.</p> <p>The decision on which side of a border line a variety is described is made on the basis of side by side comparison with the threshold variety Bonaire (see ISF definition of threshold variety). Additionally, statistical analysis could be used to support the decision.</p> <p>Varieties can only be considered distinct when observed and described with different notes in the same trial.</p>
13.	Critical control points	<ul style="list-style-type: none"> • The first symptoms will appear relatively late, compared with other cucumber viruses. When symptoms appear before day 11 after inoculation, it may be another virus. • CGMMV is contagious, and stable, also outside the plant. Avoid touching the plants. Use gloves. Do not combine CGMMV testing with other cucumber resistance tests in one compartment, if possible. • Aphids may transmit CGMMV as well as other viruses that may contaminate the CGMMV strain. Test should be in aphid-free compartment.