

Technical Working Party for Vegetables
TWV/59/7
**Fifty-Ninth Session
Virtual meeting, May 5 to 8, 2025**
Original: English
Date: March 31, 2025

PARTIAL REVISION OF THE TEST GUIDELINES FOR SHIITAKE
Document prepared by an expert from Japan
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1. The purpose of this document is to present a proposal for a partial revision of the Test Guidelines for Shiitake (document TG/282/1 Rev.).
2. The Technical Working Party for Vegetables (TWV), at its fifty-eighth session¹, agreed that the Test Guidelines for Shiitake (*Lentinula edodes* (Berk.) Pegler.) be partially revised (see document TWV/58/11 “Report”, Annex II).
3. The following changes are proposed:
 - (a) Deletion of characteristics and explanation Ad. 4, 5, 6, 7, 8: “Mycelium: growth rate at 10°C, 15°C, 20°C, 25°C, 30°C”
 - (b) Revision of characteristics 12 “Cap: height” and 20 “Gill: width” and explanation Ad. 10, 12, 20, 24, 25, 30
 - (c) Revision of characteristic 31 “Fruit body: dry weight at harvest maturity” and deletion of explanation Ad. 31
4. The proposed changes are presented below in highlight and underline (insertion) and ~~strikethrough~~ (deletion).

¹ held via electronic means, from April 22 to 25, 2024.

Proposed deletion of characteristics and explanation Ad. 4, 5, 6, 7, 8: "Mycelium: growth rate at 10°C, 15°C, 20°C, 25°C, 30°C"

Current wording

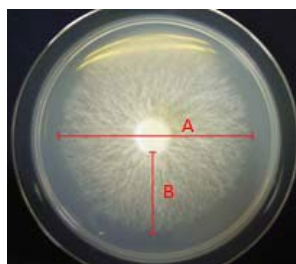
	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
3. MS (+)	Mycelium: optimum temperature for growth	Mycélium : température optimale de culture	Myzel: optimale Wachstums-temperatur	Micelio: temperatura óptima de desarrollo		
QN (b)	23°C	23°C	23°C	23°C	Kinko 243	3
	25°C	25°C	25°C	25°C	HS607, Kinko 115	5
	27°C	27°C	27°C	27°C	Morino Natsumi	7
4. MS (+)	Mycelium: growth rate at 10°C	Mycélium : vitesse de croissance à 10°C	Myzel: Wachstumsrate bei 10°C	Micelio: índice de desarrollo a 10°C		
QN (b)	very slow	très lente	sehr langsam	muy lento	Kinko 115	1
	slow	lente	langsam	lento	Kinoh1	2
	medium	moyenne	mittel	medio	HS607, Morino Natsumi	3
	fast	rapide	schnell	rápido	KX-S005	4
	very fast	très rapide	sehr schnell	muy rápido	Yujiro	5
5. MS (+)	Mycelium: growth rate at 15°C	Mycélium : vitesse de croissance à 15°C	Myzel: Wachstumsrate bei 15°C	Micelio: índice de desarrollo a 15°C		
QN (b)	very slow	très lente	sehr langsam	muy lento		1
	slow	lente	langsam	lento	Kinko 115	2
	medium	moyenne	mittel	medio	HS607, Susono 360	3
	fast	rapide	schnell	rápido	Yujiro	4
	very fast	très rapide	sehr schnell	muy rápido	KX-S005	5
6. MS (*) (+)	Mycelium: growth rate at 20°C	Mycélium : vitesse de croissance à 20°C	Myzel: Wachstumsrate bei 20°C	Micelio: índice de desarrollo a 20°C		
QN (b)	very slow	très lente	sehr langsam	muy lento	Bridge 32, Kinno 1	1
	slow	lente	langsam	lento	Kinko 115	2
	medium	moyenne	mittel	medio	ML8, Morino Natsumi	3
	fast	rapide	schnell	rápido	Morino Harumitsu	4
	very fast	très rapide	sehr schnell	muy rápido	Akiyama A-950, Hokken 600, JMS 237	5

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
7. MS (+)	Mycelium: growth rate at 25°C	Mycélium : vitesse de croissance à 25°C	Myzel: Wachstumsrate bei 25°C	Micelio: índice de desarrollo a 25°C		
QN (b)	very slow	très lente	sehr langsam	muy lento		1
	slow	lente	langsam	lento	Kinko 115	2
	medium	moyenne	mittel	medio	HS73, Susono 360	3
	fast	rapide	schnell	rápido	Hokken600, Yujiro	4
	very fast	très rapide	sehr schnell	muy rápido		5
8. MS (*) (+)	Mycelium: growth rate at 30°C	Mycélium : vitesse de croissance à 30°C	Myzel: Wachstumsrate bei 30°C	Micelio: índice de desarrollo a 30°C		
QN (b)	very slow	très lente	sehr langsam	muy lento	Akiyama A-526	1
	slow	lente	langsam	lento	HS73, Morino Harumitsu	2
	medium	moyenne	mittel	medio	Kinko 115	3
	fast	rapide	schnell	rápido	Mori XR1, Susono 360	4
	very fast	très rapide	sehr schnell	muy rápido	Morino Natsumi, Yujiro	5

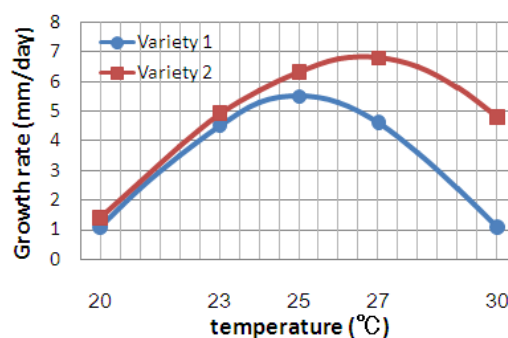
Ad. 3: Mycelium: optimum temperature for growth

Ad. 4, 5, 6, 7, 8: Mycelium: growth rate at 10°C, 15°C, 20°C, 25°C, 30°C

The incubation temperature of mycelium, which combines the information from characteristics 3 to 8, is examined at 10°C, 15°C, 20°C, 23°C, 25°C, 28°C and 30°C. Measure the length or diameter (see 8.1 (b) tube/plate) of mycelium between the 4th and the 14th day, cultured at each temperature. The amount of mycelium growth per day at each temperature is considered to be the growth rate. The optimum temperature for growth of mycelium is the incubation temperature which shows the highest growth rate. These characteristics should be evaluated by drawing a mycelium growth curve (see following graph).



A: diameter of mycelium
B: length of colony



Proposed new wording

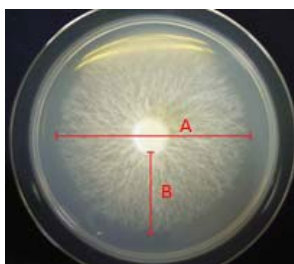
	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
3. MS (+)	Mycelium: optimum temperature for growth	Mycélium : température optimale de culture	Myzel: optimale Wachstums-temperatur	Micelio: temperatura óptima de desarrollo		
QN (b)	23°C	23°C	23°C	23°C	Kinko 243	3
	25°C	25°C	25°C	25°C	HS607, Kinko 115	5
	27°C	27°C	27°C	27°C	Morino Natsumi	7
4. MS (+)	Mycelium: growth rate at 10°C	Mycélium : vitesse de croissance à 10°C	Myzel: Wachstumsrate bei 10°C	Micelio: índice de desarrollo a 10°C		
QN (b)	very slow	très lente	sehr langsam	muy lento	Kinko 115	1
	slow	lente	langsam	lento	Kinoh1	2
	medium	moyenne	mittel	medio	HS607, Morino Natsumi	3
	fast	rapide	schnell	rápido	KX-S005	4
	very fast	très rapide	sehr schnell	muy rápido	Yujiro	5
5. MS (+)	Mycelium: growth rate at 15°C	Mycélium : vitesse de croissance à 15°C	Myzel: Wachstumsrate bei 15°C	Micelio: índice de desarrollo a 15°C		
QN (b)	very slow	très lente	sehr langsam	muy lento		1
	slow	lente	langsam	lento	Kinko 115	2
	medium	moyenne	mittel	medio	HS607, Susono 360	3
	fast	rapide	schnell	rápido	Yujiro	4
	very fast	très rapide	sehr schnell	muy rápido	KX-S005	5
6. MS (+)	Mycelium: growth rate at 20°C	Mycélium : vitesse de croissance à 20°C	Myzel: Wachstumsrate bei 20°C	Micelio: índice de desarrollo a 20°C		
QN (b)	very slow	très lente	sehr langsam	muy lento	Bridge 32, Kinno 1	1
	slow	lente	langsam	lento	Kinko 115	2
	medium	moyenne	mittel	medio	ML8, Morino Natsumi	3
	fast	rapide	schnell	rápido	Morino Harumitsu	4
	very fast	très rapide	sehr schnell	muy rápido	Akiyama A-950, Hokken 600, JMS 237	5

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
7. MS (+)	Mycelium: growth rate at 25°C	Mycélium : vitesse de croissance à 25°C	Myzel: Wachstumsrate bei 25°C	Micelio: índice de desarrollo a 25°C		
QN (b)	very slow	très lente	sehr langsam	muy lento		1
	slow	lente	langsam	lento	Kinko 115	2
	medium	moyenne	mittel	medio	HS73, Susono-360	3
	fast	rapide	schnell	rápido	Hokken600, Yujiro	4
	very fast	très rapide	sehr schnell	muy rápido		5
8. MS (+)	Mycelium: growth rate at 30°C	Mycélium : vitesse de croissance à 30°C	Myzel: Wachstumsrate bei 30°C	Micelio: índice de desarrollo a 30°C		
QN (b)	very slow	très lente	sehr langsam	muy lento	Akiyama A-526	1
	slow	lente	langsam	lento	HS73, Morino Harumitsu	2
	medium	moyenne	mittel	medio	Kinko 115	3
	fast	rapide	schnell	rápido	Mori XR1, Susono-360	4
	very fast	très rapide	sehr schnell	muy rápido	Morino Natsumi, Yujiro	5

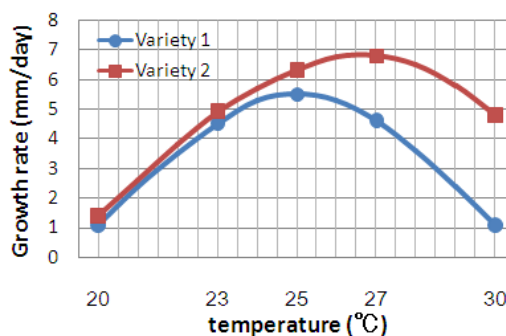
Ad. 3: Mycelium: optimum temperature for growth

Ad. 4, 5, 6, 7, 8: Mycelium: growth rate at 10°C, 15°C, 20°C, 25°C, 30°C

The incubation temperature of mycelium, which combines the information from characteristics 3 to 8, is examined at 10°C, 15°C, 20°C, 23°C, 25°C, 27°C and 30°C. Measure the length or diameter (see 8.1 (b) tube/plate) of mycelium between the 4th and the 14th day, cultured at each temperature. The amount of mycelium growth per day at each temperature is considered to be the growth rate. The optimum temperature for growth of mycelium is the incubation temperature which shows the highest growth rate. These characteristics should be evaluated by drawing a mycelium growth curve (see following graph).



A: diameter of mycelium
B: length of colony



Proposed revision of characteristics 12 “Cap: height” and 20 “Gill: width” and explanation Ad. 10, 12, 20, 24, 25, 30

Current wording

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
12	VG/ MS	Cap: height	Chapeau : hauteur	Hut: Höhe	Sombrero: altura		
(+)							
QN	(c)	low	basse	niedrig	bajo	Morino Harumitsu	3
		medium	moyenne	mittel	medio	Mori XR1, Morino Natsumi, Susono 360	5
		high	haute	hoch	alto	Akiyama A-526	7
20	VG	Gill: width	Lamelles : largeur	Lamellen: Breite	Láminas: anchura		
(+)							
QN	(c)	very narrow	très étroites	sehr schmal	muy estrecha	Mori XR1	1
		narrow	étroites	schmal	estrecha	Yujiro	3
		medium	moyennes	mittel	media	Susono 360	5
		wide	larges	breit	ancha	KX-S034	7
		very wide	très larges	sehr breit	muy ancha		9

Ad. 10: Cap: diameter

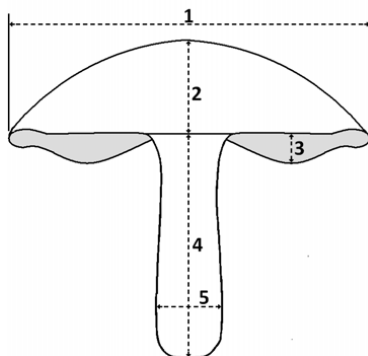
Ad. 12: Cap: height

Ad. 20: Gill: width

Ad. 24: Stipe: length

Ad. 25: Stipe: diameter

Ad. 30: Fruit body: ratio of cap diameter / stipe length



- 1: Cap: diameter: Measure the widest part of the cap.
- 2: Cap: height: Measure the highest part of the cap.
- 3: Gill: width: Measure the widest part of the gill.
- 4: Stipe: length: Measure from the base of the stipe to the base of cap.
- 5: Stipe: diameter: Measure the widest part of the stipe.

Proposed new wording

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
12	VG/ MS	Cap: thickness height				
(+)						
QN	(c)	thin low			Morino Harumitsu	3
		medium			Mori XR1, Morino Natsumi, Susono 360	5
		thick high			Akiyama A-526	7
20	VG	Gill: height width				
(+)						
QN	(c)	very low narrow			Mori XR1	1
		low narrow			Yujiro	2 3
		medium			Susono 360	3 5
		high wide			KX-S034	4 7
		very high wide				5 9

Ad. 10: Cap: diameter

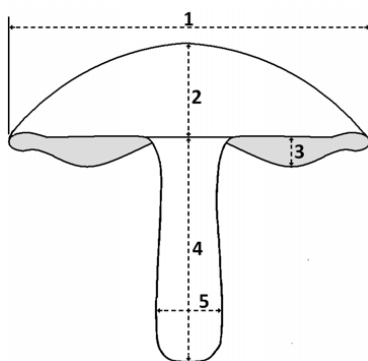
Ad. 12: Cap: ~~thickness~~ height

Ad. 20: Gill: ~~height~~ width

Ad. 24: Stipe: length

Ad. 25: Stipe: diameter

Ad. 30: Fruit body: ratio of cap diameter / stipe length



1: Cap: diameter: Measure the widest part of the cap.

2: Cap: ~~thickness~~ height: Measure the ~~thickest~~ highest part of the cap.

3: Gill: ~~height~~ width: Measure the ~~highest~~ widest part of the gill.

4: Stipe: length: Measure from the base of the stipe to the base of cap.

5: Stipe: diameter: Measure the widest part of the stipe.

Proposed revision of characteristic 31 “Fruit body: dry weight at harvest maturity” and deletion of explanation Ad. 31

Current wording

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
31	MG	Fruit body: dry weight at harvest maturity				
(+)						
QN	(c)	light			HS73	3
		medium			Akiyama A-526, Susono 360, Yujiro	5
		heavy				7

Ad. 31: Fruit body: dry weight at harvest maturity

The fruit body should be dried at 60 °C until a constant weight.

Proposed new wording

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
31	MG	Fruit body: fresh dry weight at harvest maturity	Organe de fructification : poids sec à maturité de récolte	Fruchtkörper: Trockengewicht bei Erntereife	Cuerpo frutal: peso seco en la época de madurez para la cosecha		
(+)							
QN	(c)	light	petit	leicht	ligero	HS73	3
		medium	moyen	mittel	medio	Akiyama A-526, Susono 360, Yujiro	5
		heavy	élevé	schwer	pesado		7

Ad. 31: Fruit body: dry weight at harvest maturity

~~The fruit body should be dried at 60 °C until a constant weight.~~

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