

CULTIVATED MUSHROOMS

AGARICUS

Fred Jacobs





MUSHROOM PRODUCTION IN HOLLAND


● PRODUCERS 250

● PRODUCTION 280 Mill. Kg

→ 120 Mill. Kg FRESHMARKET

→ 160 Mill. Kg PROCESSING INDUSTRY

● VALUE : € 300,000,000,=





Mushroom production in the old EU-countries in 2003

1999

2003

Holland

260.000

280.000.

France

150.000

130.000.

U.K.

100.000

65.000.

Italy

80.000

75.000.

Spain

75.000

90.000.

Ireland

60.000

65.000.

Germany

60.000

60.000.

Belgium

45.000

40.000.

Denmark

8.000

7.500.


(X 1000 Kg)






Mushroom Crop in the new EU-countries in 2003

Polen	130.000.000	kg
Tsjechie	5.000.000	
Hongarien	40.000.000	
Estonia	100.000	
Latvia	500.000	
Lithuania	3.000.000	
Slowakia	900.000	
Slovenie	1.500.000	





DEFINITION OF PRODUCE

- COMMERCIAL TYPES
 - STAGE OF DEVELOPMENT
 - COLOUR GROUPS
- 



COMMERCIAL TYPES

- “UNCUT” MUSHROOMS

- “CUT” MUSHROOMS

THE LOWER PART OF THE STALK IS CUTTED.





STAGES OF DEVELOPMENT

● “CLOSED” - MUSHROOMS

● “VEILED” - MUSHROOMS

● “OPEN” - MUSHROOMS

● “FLAT” - MUSHROOMS



White mushroom



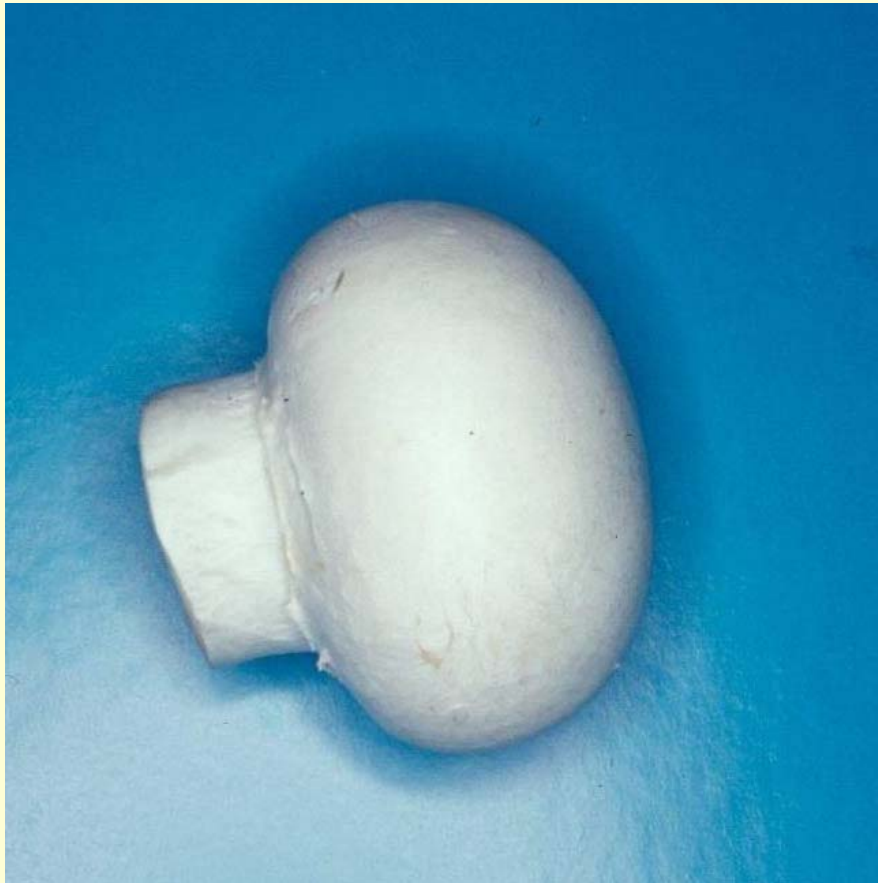
Brown Mushroom



Uncut Mushroom



Cut Mushroom



STAGES OF DEVELOPMENT



- CLOSED MUSHROOM
OUTSIDE

STAGES OF DEVELOPMENT



● CLOSED
MUSHROOMS
INSIDE

STAGES OF DEVELOPMENT



● VEILED MUSHROOM
OUTSIDE

STAGES OF DEVELOPMENT

● VEILED MUSHROOM



STAGES OF DEVELOPMENT

● Veiled mushroom



STAGES OF DEVELOPMENT

● OPEN MUSHROOM



STAGES OF DEVELOPMENT

● Flat



STAGES OF DEVELOPMENT



● GILL COLOUR
PINK - LIGHT BROWN



PROVISIONS CONCERNING QUALITY

- MINIMUM REQUIREMENTS

 - ↓ **OUT OF GRADE**

- CLASSIFICATION

 - ↓ **“EXTRA” CLASS**

 - ↓ **CLASS I**

 - ↓ **CLASS II**





1. MINIMUM REQUIREMENTS

- INTACT ↑ “CUT” MUSHROOMS ARE INTACT
 - SOUND ↑ SEVERE BROWNING OF THE STALK IS EXCLUDED
 - CLEAN ↑ PRACTICALLY FREE: TRACES OF CASING MATERIAL ARE ALLOWED
 - FRESH IN APPEARENCE
 - ↑ TYPICAL GILL COLOUR OF THE STRAIN / COMMERCIAL TYPE ↙
-



1. MINIMUM REQUIREMENTS

- PRACTICALLY FREE OF PESTS
- PRACTICALLY FREE FROM DAMAGE CAUSED BY PESTS
- FREE OF EXTERNAL MOISTURE
- FREE FROM ANY FOREIGN SMELL / TASTE





MINIMUM REQUIREMENTS

- DEVELOPMENT AND CONDITION

- ➔ WITHSTAND TRANSPORT AND HANDLING

- ➔ ARRIVE SATISFACTORY CONDITION AT PLACE OF DESTINATION





MINIMUM REQUIREMENTS

OUT OF GRADE ARE:

→ WET STALKS (water illness)

→ CASING MATERIAL ON THE FOOT
FOR CUT MUSROOMS


→ A DARK BROWN OR BLACK
GILL COLOUR

→ HIGH INTERNAL MOISTURE CONTENT






Major defects

- heavy internal moisture
 - spots
 - corkfeets
 - water illness like waterstalk
- 



Minor defects

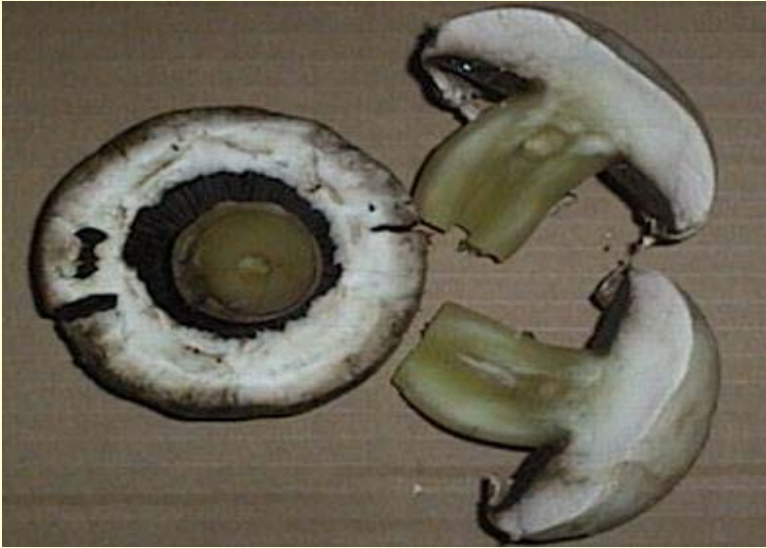
- misshapen
 - discolourment
 - traces of casingmaterial
 - slight bruises
 - slight hollow stalk
 - feathering (scaling)
- 

OUT OF GRADE



● INTERNAL MOISTURE

OUT OF GRADE



WATER ILLNES



OUT OF GRADE



 MITE

OUT OF GRADE

- GALL-GNAT
NEAR THE VEIL



OUT OF GRADE



- Dry bubble

OUT OF GRADE



- Dry bubble

OUT OF GRADE



- Wet bubble

OUT OF GRADE

● BACTERIAL SPOTS



OUT OF GRADE

- BACTERIAL SPOTS ON BROWN MUSHROOMS



OUT OF GRADE

ROT



OUT OF GRADE



● PURPLE SPOT



OUT OF GRADE

 WATERSTAINING



OUT OF GRADE

● CORK FEET






CLASS I

ALLOWED ARE:

- slight defect in shape
- slight defect in colouring
- slight superficial blemishes
provided they are not progressive
- slight superficial bruising
- slight traces of casing material

“uncut” may have some casing at the feet



CLASS I



- Slight defects in colour

CLASS I



● SLIGHT SUPERFICIAL
BRUISES

CLASS I

- SLIGHT SUPERFICIAL
BRUISES



CLASS I

- SLIGHT TRACES OF CASING MATERIAL





CLASS I

SHAPE



● SLIGHT DEFECTS
ALLOWED





CLASS I

SHAPE

- SLIGHT DEFECTS
ALLOWED




CLASS I

SCALING





CLASS II

- DEFECT IN SHAPE
 - DEFECT IN COLOURING
 - SLIGHT BLEMISHES
 - SLIGHT BRUISING
 - HOLLOW STALKS
 - TRACES OF CASING MATERIAL
 - ↑ uncut mushrooms may have casing material on the foot
- 

CLASS II



- TRACES OF CASING MATERIAL

CLASS II

● DEFECT IN SHAPE



CLASS II

● BRUISING

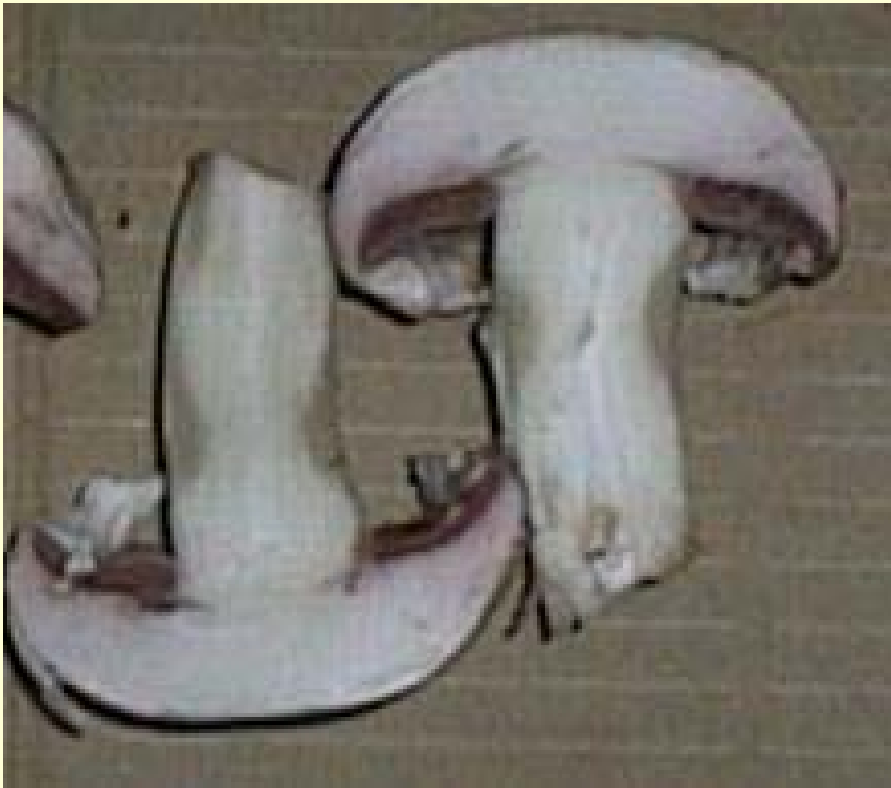


CLASS II



- THE SCALES
LOOSE FROM
THE CAP

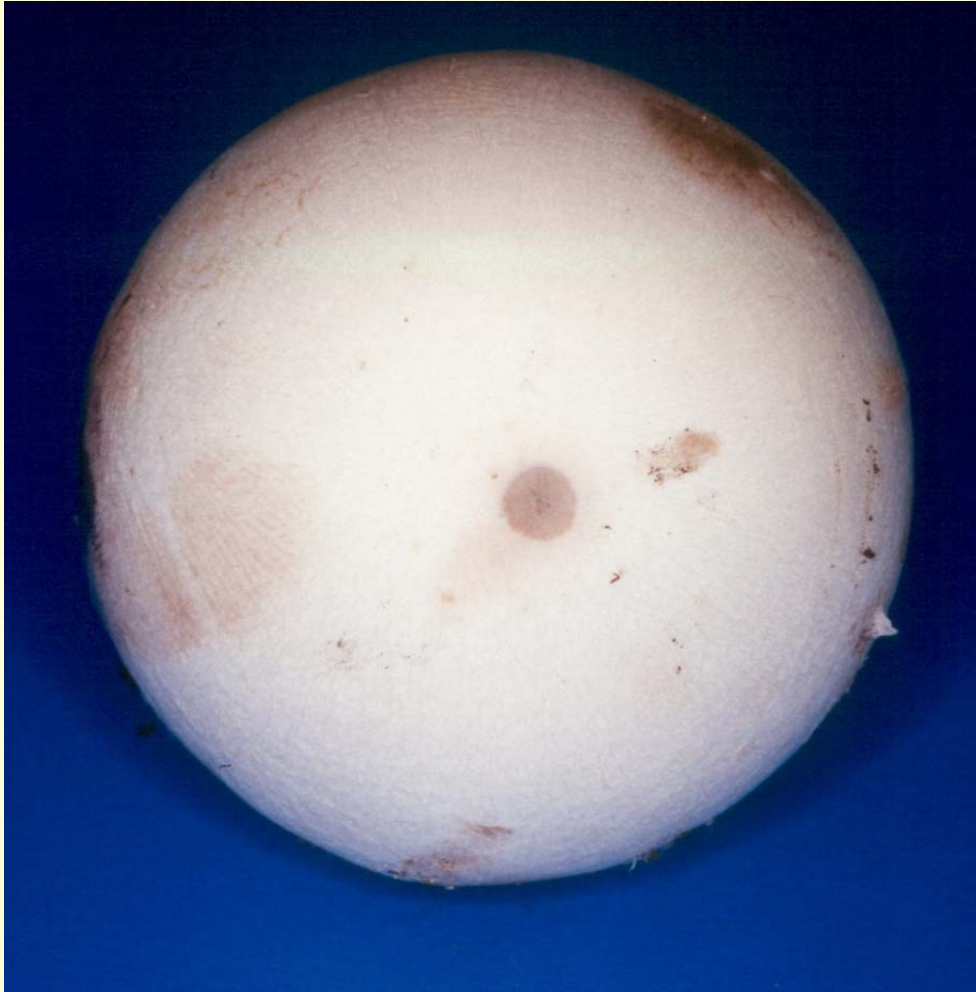
CLASS II



● INTERNAL MOISTERE

CLASS II

● SLIGHT BLEMISHES



CLASS II



CUT NOT APPROX.
PERPENDICULAR
TO LONGITUDINAL
AXIS



3. PROVISIONS CONCERNING SIZING

THE SIZE IS DETERMINED BY:

↑ THE MAXIMUM DIAMETER OF THE **CAP**

↑ THE MAXIMUM LENGTH OF THE **STALK**

● MINIMUM SIZE

● LENGTH OF THE STALK





MINIMUM SIZE

MINIMUM CAP DIAMETER

- CLOSED - VEILED - OPEN MUSHROOMS

↑ 15 mm

- FLAT MUSHROOMS

↑ 20 mm





LENGTH OF THE STALK

- THE LENGTH IS MEASURED:

- ↑ OPEN AND FLAT:

FROM THE GILLS UNDER THE CAP

- ↑ CLOSED AND VEILED:

FROM THE VEIL





SIZING

- FOR “**EXTRA**” CLASS COMPULSORY
- **CLASS I AND CLASS II MUST MEET SIZE RANGES IF INDICATED THE TERMS:**

→ **SMALL**

→ **MEDIUM**

→ **LARGE**





SIZING

OPEN - VEILED - CLOSED MUSHROOMS

DIAMETER OF THE CAP

SIZE:

SIZE LIMITS:

SMALL

15 - 45 mm

MEDIUM

30 - 65 mm

LARGE

50 mm and over





SIZING

OPEN - VEILED - CLOSED MUSHROOMS

MAXIMUM LENGHT OF THE STALK

CUT MUSHROOMS

UNCUT MUSHROOMS

1/2 OF CAP
DIAMETER

2/3 OF CAP
DIAMETER





SIZING

FLAT MUSHROOMS

DIAMETER OF THE CAP

SIZE:

SIZE LIMITS:

SMALL

20 - 55 mm

LARGE

50 mm and over





SIZING

FLAT MUSHROOMS

MAXIMUM LENGTH OF THE STALK

CUT MUSHROOMS

UNCUT MUSHROOMS

2/3 OF CAP
DIAMETER

2/3 OF CAP
DIAMETER





SIZING

FLAT MUSHROOMS

DIAMETER OF THE CAP

SIZE:

SIZE LIMITS:

SMALL

20 - 55 mm

LARGE

50 mm and over





SIZING

FLAT MUSHROOMS

MAXIMUM LENGTH OF THE STALK

CUT MUSHROOMS

UNCUT MUSHROOMS

2/3 OF CAP
DIAMETER

2/3 OF CAP
DIAMETER





PROVISIONS CONCERNING MARKING

A IDENTIFICATION

PACKER AND/OR DISPATCHER:


- FULL NAME AND ADRES
 - CODEMARK - OFFICIALLY ISSUED
OR ACCEPTED
- 



PROVISIONS CONCERNING MARKING

B NATURE OF PRODUCE

- → IF CONTENTS ARE NOT VISIBLE FROM THE OUTSIDE:

 - CULTIVATED MUSHROOMS
 - “CUT” OR “UNCUT”
 - COLOUR IF NOT “WHITE”
 - STAGE OF DEVELOPMENT
 - → OPTIONAL
 - NAMES OF DIFFERENT SPECIES
 - → WHERE APPROPRIATE
- 



PROVISIONS CONCERNING MARKING

C ORIGINE OF PRODUCE

- COUNTRY OF ORIGINAL

- Also allowed the district, region, etc.
= optional





PROVISIONS CONCERNING MARKING

D COMMERCIAL SPECIFICATIONS

- SIZED (IF SIZED)

- ➔ CAP DIAMETERS OR TERM:

- “SMALL” - “MEDIUM” - “LARGE”

- NET WEIGHT





PROVISIONS CONCERNING MARKING

E OFFICIAL CONTROL MARK


= OPTIONAL





PROVISIONS CONCERNING TOLERANCES

A QUALITY TOLERANCES

- “EXTRA” CLASS
5% BY NUMBER OR WEIGHT
 - CLASS I
10% BY NUMBER OR WEIGHT
 - CLASS II
10% BY NUMBER OR WEIGHT
- 




PROVISIONS CONCERNING TOLERANCES

B SPECIAL TOLERANCES:

STAGE OF DEVELOPMENT IS INDICATED

MUSHROOM:	<u>“CLOSED”</u>	<u>“VEILED”</u>	<u>“OPEN”</u>
ALLOWED :	% “veiled”	% “open”	% “flat”
<u>“EXTRA”</u>	5%	5%	5%
<u>CLASS I</u>	10%	10%	10%
<u>CLASS II</u>	25%	25%	25%






PROVISIONS CONCERNING TOLERANCES

C SIZE TOLERANCES



FOR ALL CLASSES:

**10% BY NUMBER OR WEIGHT OF
THE MUSHROOMS NOT
CONFORMING TO THE SIZES
INDICATED**





PROVISIONS CONCERNING PRESENTATION

A UNIFORMITY

THE CONTENT OF EACH PACKAGE MUST BE UNIFORM AND CONTAIN ONLY MUSHROOMS OF THE SAME:

- ORIGINE
- COMMERCIAL TYPE
- QUALITY
- SIZE → IF SIZED

