Mushroom growing conditions chart

Temperature, humidity, fresh air, light and days for each growing stage of 14 gourmet and medicinal mushrooms, in one chart.

Each table is the stage table from that species' grow guide, word for word. Every number is cited in the guide, whose “Where these numbers come from” note says which source gives which figure, and each species here lists those sources.

Published sources often disagree, so many cells give a range, or two figures with the source of each. Temperatures are in °F, most with °C in brackets. Humidity and fresh air are given the way each source states them: fresh air as CO2 in parts per million (ppm), as air changes an hour, or as whether the bag, lid or bed is open.

Online, with every source linked: hyphaapp.com/grow/conditions-chart

Oyster *Pleurotus ostreatus* hyphaapp.com/grow/oyster

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Bulk colonization	75–77°F (24–25°C); fastest at 78–84°F (26–29°C) in the substrate	80–90%	None; CO2 can run near 20,000 ppm	Dark	10–20 on sawdust, 14–28 on straw
Pinning	55–60°F (13–16°C), or about 68°F (20°C)	95–100%	Under 600 ppm (UC) to under 1,000 ppm (North Spore); 4 air changes an hour	About 12 hours a day; diffuse daylight is enough	7–14
Fruiting	60–64°F (16–18°C); 55–75°F (13–24°C) works	85–95%	Under 600–1,000 ppm; 4–6 air changes an hour	Same as pinning	3–6 from pins to harvest; flushes about 10 days apart

Sources: UF/IFAS · UC Cooperative Extension · Cornell · North Spore booklet · North Spore help center

Lion's mane *Hericium erinaceus* hyphaapp.com/grow/lions-mane

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Bulk colonization	68–75°F (20–24°C)	Sealed bag	None; bag stays closed	Dark	14–21
Pinning	55–70°F (13–21°C)	90–95% RH	CO2 500–700 ppm	500–1,000 lux	3–7
Fruiting	55–70°F (13–21°C)	80–90% RH	CO2 under 1,000 ppm	500–1,000 lux	5–10 to harvest

Sources: GroCycle · Cornell · North Spore booklet · Cornell Small Farms and Fungi Ally

Shiitake *Lentinula edodes* hyphaapp.com/grow/shiitake

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Spawn run and browning (block, in its bag)	Under 80°F (27°C), ideally about 70°F (21°C)	About 90%	None	None required	6–12 weeks, until about 75% brown
Initiation (soak or cold shock)	59–68°F (15–20°C)	95%	2–4 air changes an hour	Natural light, or about 10 lux of 370–420 nm light	Pins 7–14 days after the soak
Fruiting	59–68°F (15–20°C); 55–70°F per North Spore	85–90%; 85–95% per North Spore	2–4 air changes an hour; CO2 under 1,000 ppm	As for initiation	First harvest 1–2 weeks after blocks go into fruiting
Spawn run on logs (outdoors)	Outdoor; fruiting starts once it drops to 60°F (16°C) or below	60–75% for logs	Outdoors	About 60% shade	6–18 months

Sources: Cornell · UC Cooperative Extension · North Spore booklet · SARE · MSU Extension

Reishi *Ganoderma lucidum* hyphaapp.com/grow/reishi

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Bulk colonization	About 77°F (25°C)	Sealed bag	None; bag stays closed	Dark	About 20–25
Antler growth (bag closed)	65–80°F (18–27°C)	95–100% RH	CO2 20,000–40,000 ppm	Ambient light	About 28–60
Conk growth (bag open)	65–80°F (18–27°C)	85–95% RH	CO2 under 2,000 ppm	About 800 lux	About 60–90

Sources: Oregon State Extension · Journal of Fungi · ICAR · North Spore booklet

King oyster *Pleurotus eryngii* hyphaapp.com/grow/king-oyster

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Bulk colonization	70–75°F (21–24°C)	Sealed bag	None; bag stays sealed	Dark	About 14 days, up to 21
Pinning	About 59°F (15°C)	95–100%	Corner of the bag cut; CO2 stays high inside	Indirect light, or 12 hours a day	Pins 4–8 days after opening
Fruiting	54–65°F (12–18°C)	85–88%	Bag cut back once pins are about 2 in; under 2,000 ppm	Indirect light, or 12 hours a day	4–5 days after the cut; picked within about 14 days of opening

Sources: GroCycle · North Spore booklet

Pink oyster *Pleurotus djamor* hyphaapp.com/grow/pink-oyster

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Bulk colonization	About 75°F (24°C)	80–90%	None	Dark	9–14, until pins start
Pinning	70–80°F (21–27°C)	95–100%	500–1,000 ppm CO2	Indirect light; more light gives pinker caps	Under a week, up to 12 days to first harvest
Fruiting	70–80°F (21–27°C)	85–95%	500–1,000 ppm CO2	Same as pinning	Next flush about 7 days after harvest

Sources: GroCycle (grocycle.com/how-long-does-it-take-to-grow-mushrooms) · GroCycle (grocycle.com/pink-oyster-mushroom) · UF/IFAS · UC Cooperative Extension · North Spore booklet

Turkey tail *Trametes versicolor* hyphaapp.com/grow/turkey-tail

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Spawn run (sawdust bag)	75°F (24°C) ideal; 64–70°F (18–21°C) works, slower	Sealed bag	Sealed bag	Dark, no direct sun	14–21
Pinning	61–70°F (16–21°C)	95–100%	Fresh air starts pinning	Not stated (200 lux in one study)	White blobs over 2–3 weeks
Fruiting	61–70°F (16–21°C)	85–90%	Fresh air	Not stated (200 lux in one study)	Up to about 3 months; pick at 1–2 months old
Logs, outdoors	Outdoor weather	At least 1 inch (25 mm) of rain a week	Outdoors	Not stated	First fruit about a year after inoculation

Sources: GroCycle · Asian Journal of Mycology

Maitake *Grifola frondosa* hyphaapp.com/grow/maitake

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Spawn run (sealed bag)	68–73°F (20–23°C); 73–79°F (23–26°C) in a Chinese trial	not stated	None, sealed bag; CO2 under 3,000 ppm in the trial	Not needed; dark in the trial	About 3 weeks to turn white; spawn run 30–60 days
Primordia (still in the bag)	68–73°F (20–23°C)	95%	CO2 2,000–5,000 ppm	100–500 lux	3–5 more weeks after dark bumps appear
Fruiting (bag opened)	60–64°F (16–18°C); 66–70°F (19–21°C) in the trial; 50–65°F (10–18°C) per Mushroom Mountain	85–95%; 93–97% in the trial	CO2 1,000 ppm or less; 400–700 ppm in the trial	500–1,000 lux, 12 hours on; 200 lux, 12 hours in the trial	1–2 weeks from fingers to harvest
Logs (bagged, then buried)	55–70°F (13–21°C) while colonizing	not stated	Sealed filter bag, then buried	Shade	2–3 months to colonize; fruits about a year after burial

Sources: Penn State · GroCycle · Mushroom Mountain · AMB Express, via PMC

Wine cap *Stropharia rugosoannulata* hyphaapp.com/grow/wine-cap

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Planting the bed	Any time from last frost to a few weeks before first frost	Water the bed thoroughly, not to sogginess	Open air	Partial shade	Day 0
Bed colonization	Grows at 41–95°F (5–35°C), best near 79°F (26°C)	Bed damp, like a wrung-out sponge	Open air	Partial shade	About 2–6 months to first mushrooms
Pinning	A drop to 50–68°F (10–20°C)	Bed kept damp	Open air	Partial shade	Not stated
Fruiting	About 61°F (16°C) gives stout caps; 75°F (24°C) gives fast, thin ones	85–95%; stems crack more often below 60%	Open air	Partial shade	Pick within the first few days

Sources: Brooklyn Botanic Garden · review (link.springer.com/article/10.1007/s00253-025-13576-1) · Cornell Small Farms · NC State Extension · Johnny's · GroCycle

Enoki *Flammulina velutipes* hyphaapp.com/grow/enoki

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Spawn run	64–77°F (18–25°C); farms 64–68°F (18–20°C)	Sealed bottle or bag	Not stated	Dark	2–4 weeks; farms 20–25 days
Pinning	45–50°F (7–10°C); farms 50–54°F (10–12°C)	95–100%	Not stated	Indirect, bright enough to read by; white store enoki is grown dark	3–5 days, up to 1–2 weeks; farms 10–14 days
Fruiting	50–61°F (10–16°C); farms 37–46°F (3–8°C)	85–95%	Kept low with a collar or sleeve for long stems	Low; 300 lux for 8 hours a day in one study	5–8 days after pins; farms pick at 13–14 cm

Sources: GroCycle (grocycle.com/enoki-mushrooms) · Penn State · PMC · Tom Volk, UW–La Crosse · GroCycle (grocycle.com/how-to-make-grain-spawn)

Chestnut *Pholiota adiposa* hyphaapp.com/grow/chestnut

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Bulk colonization	73–77°F (23–25°C) in one trial	Sealed bag	Filtered bag	Dark	4–6 weeks
Pinning	55–75°F (13–24°C); one trial chilled bags at 32–41°F (0–5°C) for 3–5 days first	85–90%; pins won't form if it's dry	Slit cut in the bag	Indirect, bright enough to read by	12–28 days
Fruiting	55–75°F (13–24°C); best yields at 57–61°F (14–16°C) in one trial	85–90%; over 95% gave the best yields in one trial	Not stated	Indirect; 12 hours a day in one trial	5–10 days after pins

Sources: GroCycle (grocycle.com/chestnut-mushrooms) · GroCycle (grocycle.com/how-to-make-grain-spawn) · Mycosphere · Kagoshima University

Pioppino *Cyclocybe aegerita (formerly Agrocybe aegerita)* hyphaapp.com/grow/pioppino

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Bulk colonization	72–77°F (22–25°C)	Sealed bag	None; bag stays closed	Not stated	9–14 days (1 kg straw or wood-chip bags); about 38 days (sawdust bottles)
Pinning	55–65°F (13–18°C)	95–100%	Small cut at the top; pins form in the bag	Indirect light, or 12 hours a day	Pins 2–5 days into fruiting conditions (kits); about 7 days (bottles at 64–68°F)
Fruiting	55–65°F (13–18°C)	85–95%	Bag cut back to 4 in sidewalls; under 2,000 ppm	Indirect light, or 12 hours a day	Harvest 6–10 days after pins form (kits); about 5 days (bottles)

Sources: Rezaeian et al., Asian Journal of Mycology · Jeon et al., Korea Journal of Breeding Science · GroCycle (grocycle.com/pioppino-mushrooms) · North Spore booklet · GroCycle (grocycle.com/how-long-does-it-take-to-grow-mushrooms)

Cordyceps *Cordyceps militaris* hyphaapp.com/grow/cordyceps

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Colonization	68–77°F (20–25°C)	60–70% in one trial	Filtered lid stays on	Dark	About 10–15
Primordia	64–72°F (18–22°C)	70–90%	Filtered lid stays on	500–1,000 lux, 12 hours on, 12 off	Day 18–25 from inoculation
Fruiting	64–72°F (18–22°C)	70–90%	Filtered lid stays on	500–1,000 lux, 12 hours on, 12 off	Harvest about day 45–60

Sources: BioTechnologia · PLOS ONE · Rootlab · Office of the Principal Scientific Adviser · Mycobiology

Wood ear *Auricularia spp.* hyphaapp.com/grow/wood-ear

Stage	Temperature	Humidity	Fresh air / CO2	Light	Days
Spawn run	73–81°F (23–27°C)	Closed bag	Closed bag	Dark; over 500 lux can set off early pins	28–30 days; 20–39 in two studies; 65 for one wild strain
Pinning	72°F (22°C) in one study; 3 days at 59–68°F (15–20°C) in another	85–90% or more	Bag opened or slit	2,000 lux, 12 hours a day, in one study	Pins 25–37 days after spawning in two studies; 76 for one wild strain
Fruiting	72–77°F (22–25°C)	85–90% or more; 75–85% in one study	Not stated	2,000 lux, 12 hours a day, in one study	First harvest 30–42 days after spawning in one study; 4–6 flushes over 2–3 months
Logs outdoors	45–60°F (7–16°C) or 50–70°F (10–21°C), by strain	Long rainy spells; 95% RH if brought indoors	Outdoors	Shade	9–18 months to first fruiting

Sources: Penn State · Saudi J Biol Sci · PLOS ONE · CREAM · Field & Forest · Mushroom Mountain

Use this chart

Source: Mushroom growing conditions chart, Hypha by Demeter Mycolabs — https://hyphaapp.com/grow/conditions-chart

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