

Colony States in Spring — Field Diagnostic

Quick reference guide for spring colony inspection and state assessment. Evidence-based diagnostic tool for determining colony health status and appropriate interventions.

 Healthy / Queenright  Transitional / Risky  Danger / Failing  Swarming / Division

Fast Decision Flow (start here)

► Yes — eggs seen (≤ 3 days)

Is there a laying queen or viable queen cells?

- Queen seen & solid worker brood → **State 1**
- Eggs + supersedure cells mid-frame → **State 3**
- Eggs but queen missing, many edge cells → **State 4**

► No — no eggs seen

Do you see **capped/open queen cells**?

- Only capped cells → **State 8**
- Hatched/torn cells; virgins likely → **State 9 or 6–7**
- None → Is there **open worker brood**?
 - Yes (larvae) → raise emergency cells; monitor → **State 4**
 - No brood → Check for bullet drone brood / multiple eggs → **State 12 or 11**

► Is colony crowded/backfilling with many queen cells at frame bottoms?

- **State 2** (swarm prep)
- After a swarm leaves and virgins present → **State 14**

Healthy / Queenright

1) Queenright, Brood-Normal

- One mated queen; compact worker brood pattern (eggs → larvae → capped).
- Little/no queen cells; steady population build.

Do: Add space before backfilling; ensure protein & nectar flow; place supers if needed.

2) Queenright with Swarm Cells

- Laying queen; many bottom/edge swarm cells (mixed stages), crowding.
- Workers slimming queen; drones abundant.

Do: Create controlled splits/nucs; relieve congestion (brood/frames up); add space; mark queen. Expect swarm in days if unmanaged.

3) Queenright with Supersedure Cells

- 1–2 centered cells; queen older/spotty pattern; colony calm.

Do: Let supersedure proceed or requeen with quality stock; verify new eggs ~10–14 days post-emergence/mating.

4) Queenright with Emergency Cells (recent queen loss)

- Eggs/young larvae present; many edge cells started.

Do: Keep best cell(s), cull extras; minimise disturbance until emergence; verify laying in ~3–4 weeks total.

Transitional / Risky

5) Queenright, Virgin Queen Present

- New virgin; no eggs yet; torn cell caps; colony edgy.

Do: Wait for mating window (weather!); avoid rough inspections; check for first eggs ~6–10 days after flights.

6) Queenless with Multiple Virgins

- Several virgins roaming/fighting; torn cells.

Do: Reduce to strongest cell/virgin if practical; avoid queen introductions until resolved; recheck in 5–7 days.

7) Queenless, One Virgin Queen

- Single unmated queen; silent brood gap.

Do: Feed/space; do not add caged queen yet; verify eggs by day 10–14 from emergence, else consider requeening.

8) Queenless with Only Capped Queen Cells

- No queen; intact capped cells pre-emergence.

Do: Protect cells from chill/crush; avoid further splits; note due date (~8 days after capping if from egg).

9) Queenless with Only Open/Hatched Cells

- Queens emerged; no eggs yet; virgins may be out or lost.

Do: Listen for piping; allow short mating window. If poor weather >2 weeks, consider introducing tested queen.

Critical Handling Protocols

- **Queen cells:** Always keep vertical; avoid temperature fluctuations below 32°C; minimize vibration and shock
- **Virgin queens:** Handle frames gently; avoid crushing or rough movements during emergence period
- **Cell transport:** Use warm, dark container; maintain stable temperature; complete transfer quickly



Danger / Failing

10) Queenless, No Cells, Fresh Eggs Present

- Eggs ≤ 3 days but queen not seen; recent loss.

Do: Add test frame of eggs/larvae to trigger emergency cells or requeen immediately with a mated queen.

11) Hopelessly Queenless (No Eggs, No Cells)

- Queen gone & no material to raise one.

Do: Combine with strong queenright colony (newspaper) or introduce a mated queen after confirming no virgins present.

12) Drone Layer / Laying Workers

- Multiple eggs/cell; bullet drone brood in worker cells; scattered pattern; high pitch.

Do: Shake-out 20–30 m from apiary; add open brood/eggs weekly for 2–3 weeks or combine with strong queenright colony; direct requeening often fails.

13) Old/Failing Queen (Drone-biased, Spotty)

- Queen present but mainly drone brood; patchy pattern.

Do: Replace queen with proven stock; consider nuc-ing her brood to prevent collapse.

Swarming & Division

14) Post-Swarm: Virgin Queen + Swarm Cells

- Prime swarm gone; virgins emerging; residual cells present.

Do: Reduce to 1–2 best cells; ensure resources; expect brood break (mite dip). Verify laying 3–4 weeks from swarm date.

15) Artificial Split with Queen Cell(s)

- Made by beekeeper; no queen yet; one or more cells.

Do: Place warm, well-fed; minimal disturbance until emergence; confirm mating success before adding space.

16) Artificial Split with Virgin or Mated Queen

- New unit started with virgin or caged mated queen.

Do (virgin): Wait for mating flights. **Do (mated):** Candy release after 24–48 h queenless period; check lay in 7–10 days.

Look-Fors by Signal (quick index)

Eggs present

- + queen seen & solid brood → **1**
- + many bottom cells/crowding → **2**
- + 1–2 mid-frame cells → **3**
- + many edge emergency cells → **4**

Behavior & tone

- Calm, focused → usually **1** or **3**
- Edgy, piping, rushy → virgins present (**5–7, 9, 14**)
- High-pitched, disorganized → often **12** or **11**

No eggs

- + capped queen cells → **8**
- + torn/hatched cells → **9, 6–7**
- + bullet drone brood, multiple eggs → **12**
- + none of the above → **11**

Frame clues

- Backfilling/honey bound → swarm risk (**2**)
- Torn queen-cell tips → virgins emerged (**5–7, 9**)
- Spotty worker brood → failing queen (**3, 13**)

Quick Actions & Intervals

• Egg → cap: ~9 days | Cap → emerge (worker): ~12 days | First eggs from new queen: ~6–14 days after mating flights (weather-dependent).

• Recheck intervals: swarm prep 3–5 d • virgins 5–7 d • new queen acceptance 7–10 d • laying worker rehab weekly.

• Combine rule: never combine two weak/queenless units; combine weak → strong and add open brood if laying workers suspected.

• Handling queen cells: keep vertical, avoid chilling/shaking; transport in warm dark box if moving frames.

