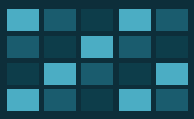
SPEARED APIARIES — DATA SERIES

THE DATA APIARIST

Systematic Beekeeping Through Data

Speared Apiaries



INSPECTIONS	HIVES	YIELD LB	YEAR

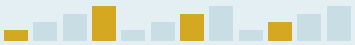
MEASURE. ANALYZE. IMPROVE.

DATA INDEX

Log Structure & Section Map

A **Hive Inspection Log**
Primary data entry — 6 fields

B **Honey Harvest Metrics**
Yield tracking & extraction data

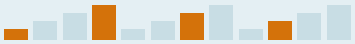


C **Queen Performance Index**
Assessment & succession planning

D **Varroa Load Tracker**
Count methodology & treatment log

E **Feeding & Treatment Record**
Input log & consumption tracking

F **Swarm Event Log**
Incident capture & colony response



G **Field Observation Matrix**
Behavioral & environmental data

H **Annual Metrics Dashboard**
KPIs, trends & year comparison

I **Reference Data Tables**
Thresholds, biology & standards

HIVE INSPECTION LOG

SECTION A

Complete every field for valid data entry. Scale: 1=lowest, 5=highest.

DATE	TIME	HIVE ID	APIARY	INSPECTOR	SEASON

COLONY RATINGS

Score 1–5 per dimension

Population Density (1=sparse, 5=packed)	1	2	3	4	5
Food Stores (1=critical, 5=abundant)	1	2	3	4	5
Hygienic Behavior (1=none, 5=excellent)	1	2	3	4	5
Capped Brood % (1=<20%, 5=>80%)	1	2	3	4	5
Temperament (1=aggressive, 5=calm)	1	2	3	4	5
Overall Health (holistic score)	1	2	3	4	5

QUEEN & BROOD STATUS

Binary indicators

☐ Eggs (1–3 days) ☐ Young larvae visible ☐ Queen spotted ☐ Queen cells present ☐ Supersedure cells

Queen ID: _____ **Year:** _____ **Color mark:** _____

PEST & DISEASE INDICATORS

Check all observed

☐ Varroa visible ☐ Chalkbrood ☐ Sacbrood ☐ EFB/AFB odor ☐ Wax moths ☐ Small hive beetles

QUANTITATIVE MEASUREMENTS

Enter values where measured

Varroa count	Sample size	Infestation %	Hive weight
mites/100	bees	%	lbs

Frames of bees	Honey frames	Brood frames	Empty frames
frames	frames	frames	frames

ACTIONS LOG

Record all interventions

☐ Fed syrup	☐ Fed pollen sub	☐ Added super	☐ Removed super
☐ Treated Varroa	☐ Requeened	☐ Split colony	☐ Merged colony
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OBSERVATION NOTES

Record all field observations here

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HONEY HARVEST METRICS

SECTION B

Track every batch for yield trends and quality benchmarking.

HARVEST DATE	HIVE(S)	EXTRACTOR ID	OPERATOR	SEASON

FRAME-BY-FRAME EXTRACTION LOG

FRAME #	SOURCE HIVE	CAPPED %	RAW WT (LB)	EXTRACTED (LB)	MOISTURE %	GRADE	NOTES

BATCH TOTALS & QUALITY METRICS

Total frames extracted		Refractometer readings (min/max)	
Total raw weight (lb)		Brix % average	
Total extracted (lb)		Color (Pfund scale)	
Extraction efficiency %		Water activity (Aw)	
Average moisture %		pH measurement	

PROCESSING CHECKLIST & STORAGE

☐ Frames uncapped	☐ Wax caps collected	☐ Loaded in extractor	☐ Spun at low speed
☐ Increased to full speed	☐ Drained through sieve	☐ Settling tank filled	☐ Covered to settle
☐ 24h+ settling complete	☐ Skimmed & filtered	☐ Bottled & capped	☐ Labels applied

Storage location: _____ **Temp (°F):** _____ **Batch code:** _____

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QUEEN PERFORMANCE INDEX

SECTION C

Systematic queen assessment — score & track over time.

DATE	HIVE ID	QUEEN AGE (YR)	MARKING	QUEEN ID #

QUEEN PERFORMANCE SCORECARD

Rate each dimension 1–5

Egg-laying rate	*— eggs observed per frame*	**SCORE:**	1	2	3	4	5
Pattern consistency	*— % solid brood pattern*	**SCORE:**	1	2	3	4	5
Temperament influence	*— colony calm under smoke*	**SCORE:**	1	2	3	4	5
Disease resistance	*— hygienic behavior observed*	**SCORE:**	1	2	3	4	5
Longevity suitability	*— age vs. productivity*	**SCORE:**	1	2	3	4	5
Progeny quality	*— worker size and vigor*	**SCORE:**	1	2	3	4	5

COMPOSITE SCORE (sum ÷ 6): ____ / 5.0

LAYING PATTERN ASSESSMENT

Solid pattern %: _____ **Drone cells among workers:** ☐ Yes ☐ No

REPLACEMENT DECISION MATRIX

- ☐ Queen age > 2 years
- ☐ Composite score < 3.0
- ☐ Spotty brood pattern
- ☐ Reduced egg production
- ☐ Colony population declining
- ☐ Supersedure cells present
- ☐ Worker morale poor
- ☐ Failed previous season

Replacement decision: ☐ No action ☐ Monitor 2 wk ☐ Schedule requeen ☐ Immediate requeen

Observations:

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VARROA LOAD TRACKER

ACTION THRESHOLD: ≥ 2 mites per 100 bees = TREAT

DATE	HIVE ID	SAMPLER	METHOD	SAMPLE #

SAMPLE CALCULATION MODULE

Infestation = (mites ÷ bees) × 100

BEES IN SAMPLE	MITES COUNTED	INFESTATION %	DAILY MITE DROP
count	count	%	per day

INFESTATION LEVEL GAUGE

< 0.5% EXCELLENT — no action	**0.5–1.0%** LOW — monitor	**1.0–2.0%** MODERATE — plan treatment
2.0–3.0% HIGH — treat now	**3.0–5.0%** CRITICAL — urgent treatment	**> 5.0%** EMERGENCY — immediate

TREATMENT PROTOCOL LOG

DATE APPLIED	TREATMENT	ACTIVE INGREDIENT	DOSE/STRENGTH	DURATION	RE-TEST DATE	RESULT

MONTHLY MITE TREND TRACKER

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
COUNT												
% LOAD												

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FEEDING & TREATMENT RECORD

SECTION E

Log all inputs. Note consumption to calculate cost-per-colony.

DATE	HIVE ID	SEASON	BEEKEEPER	WEIGHT BEFORE	WEIGHT AFTER

SYRUP & POLLEN FEED LOG

DATE	FEED TYPE	RATIO	AMOUNT	FEEDER TYPE	REFILL?	CONSUMED (LB)	COST ($)

SUPPLEMENT & MEDICATION LOG

DATE	PRODUCT NAME	PURPOSE	DOSAGE	APPLICATION	DURATION	RETEST	OUTCOME

FEED TYPE QUICK REFERENCE

1:1 Sugar Syrup	*Spring*	Stimulate brood rearing / build up
2:1 Sugar Syrup	*Fall*	Winter stores supplement (thicker = stores better)
Dry Sugar / Candy Board	*Winter*	Emergency stores when hive too cold to take liquid
Pollen Substitute (patty)	*Late Winter/Early Spring*	Protein boost before natural pollen
Fondant	*Winter*	Near-cluster feeding when temps below 50°F
High Fructose Corn Syrup	*Any*	Cost-effective syrup alternative

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SWARM EVENT LOG

SECTION F

DATE	TIME	ORIGIN HIVE	CLUSTER LOCATION	EST. SIZE	CAPTURED?

EVENT TIMELINE

Record timestamps where possible

1. **Swarm detected** — TIME: _____
2. **Cluster formed at** — LOCATION: _____
3. **Capture initiated** — TIME: _____
4. **Capture completed** — TIME: _____
5. **New hive set up** — LOCATION/ID: _____
6. **Feeding started** — PRODUCT: _____
7. **First inspection** — DATE: _____
8. **Colony confirmed viable** — DATE: _____

CAUSE ANALYSIS & PREVENTION

- ☐ **Overcrowding** — Insufficient space for colony size
- ☐ **Poor ventilation** — Excess heat/moisture buildup
- ☐ **Old queen swarming impulse** — Natural seasonal reproduction
- ☐ **New queen hatched** — Virgin queen triggered departure
- ☐ **Pest pressure** — Colony moved to escape pests
- ☐ **Unknown / natural impulse** — Could not determine cause

OUTCOME & COLONY STATUS

- Captured & rehived
- Captured & given away
- Escaped / lost
- Merged with existing
- Still monitoring

Prevention plan for next season:

- _____
- _____
- _____

SWARM EVENT LOG

DATE	TIME	ORIGIN HIVE	CLUSTER LOCATION	EST. SIZE	CAPTURED?

EVENT TIMELINE

Record timestamps where possible

1. **Swarm detected** — TIME: _____
2. **Cluster formed at** — LOCATION: _____
3. **Capture initiated** — TIME: _____
4. **Capture completed** — TIME: _____
5. **New hive set up** — LOCATION/ID: _____
6. **Feeding started** — PRODUCT: _____
7. **First inspection** — DATE: _____
8. **Colony confirmed viable** — DATE: _____

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FIELD OBSERVATION MATRIX

SECTION G

Systematic behavioral and environmental data capture.

DATE	TIME	LOCATION	TEMP °F	HUMIDITY %	WIND MPH

BEHAVIORAL OBSERVATION MATRIX

Rate each behavior 0–3

Forager flight activity	☐ 0=None	☐ 1=Low	☐ 2=Normal	☐ 3=Heavy
Pollen return rate	☐ 0=None	☐ 1=Sparse	☐ 2=Moderate	☐ 3=Heavy
Guard bee response	☐ 0=Calm	☐ 1=Alert	☐ 2=Defensiv	☐ 3=Aggressive
Washboarding	☐ 0=None	☐ 1=Minor	☐ 2=Moderate	☐ 3=Heavy
Bearding behavior	☐ 0=None	☐ 1=Minor	☐ 2=Moderate	☐ 3=Heavy
Fanning at entrance	☐ 0=None	☐ 1=Some	☐ 2=Moderate	☐ 3=Active
Orientation flights	☐ 0=None	☐ 1=Few	☐ 2=Some	☐ 3=Many
Robbing behavior	☐ 0=None	☐ 1=Suspecte	☐ 2=Occurrin	☐ 3=Heavy

ENVIRONMENTAL OBSERVATIONS

Primary forage visible?	☐ Yes	☐ No	SPECIES IN BLOOM:
Water source available?	☐ Yes	☐ No	LOCATION:
Shade adequate?	☐ Yes	☐ No	NOTES:
Entrance clear of obstruction?	☐ Yes	☐ No	DETAIL:

ANOMALIES & ALERT FLAGS

UNUSUAL ODOR	DEAD BEES AT ENTRANC	EXCESSIVE PROPOLIS
SUSPECTED QUEEN LOS	PEST ACTIVITY SEEN	UNKNOWN BEHAVIOR

Field notes:

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Field notes:

ANNUAL METRICS DASHBOARD

SECTION H

KPIs, seasonal trends, and year-over-year comparison.

YEAR	APIARY	HIVES START	HIVES END	LEAD KEEPER	LOCATION

KEY PERFORMANCE INDICATORS

Target benchmarks in parentheses

Total honey harvested (lb) Target: 30–60 lb/hive		**Average mite load (peak %)** Target: < 2.0%	
Colony survival rate (%) Target: > 75%		**Inspections completed** Target: monthly min	
Swarms captured —		**Treatments applied** —	
Queens replaced —		**New colonies started** —	

SEASONAL PRODUCTION TRACKER

METRIC	SPRING	SUMMER	FALL	WINTER	TOTAL/AVG	
Honey yield (lb)						
Max mite load (%)						
Inspections done						
Swarm events						
Colonies lost						
Feed used (lb)						

YEAR-OVER-YEAR TREND

METRIC	YEAR -2	YEAR -1	THIS YEAR	3-YR TREND	ACTION	
Honey (lb/hive)						
Peak mite %						
Colony survival %						
Inspections/hive						

Key insights & goals for next year:

-
-
-

ANNUAL METRICS DASHBOARD

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-
-
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REFERENCE DATA TABLES

Thresholds, biology reference, treatment efficacy & standards.

VARROA TREATMENT EFFICACY TABLE

TREATMENT	TYPE	ACTIVE COMPOUND	TEMP RANGE	TIMING	EFFICACY %	STRIPS/BROOD
Oxalic Acid Vapor	Organic	Oxalic acid	> 50°F	Broodless ideal	95%+	With brood: 3x
Apiguard	Organic	Thymol gel	60–105°F	Late summer	90%+	2 applications
ApiVar	Chemical	Amitraz	Any temp	Spring + Fall	93%+	With/without brood
Hopguard III	Organic	Hops beta acids	Any temp	Anytime	40–80%	3 strips typical
Formic Pro	Organic	Formic acid	50–85°F	Spring/Fall	80–90%	With brood OK
MAQS	Organic	Formic acid	50–85°F	Any season	75–85%	With brood OK

COLONY HEALTH THRESHOLDS BY SEASON

PARAMETER	SPRING	SUMMER	FALL	WINTER
Frames of bees	4–8 fr	8–14 fr	8–12 fr	4–6 clusters
Honey stores	20 lb min	30 lb+	60–80 lb	60 lb min
Brood frames	3–5 fr	6–10 fr	3–5 fr	0 (dormant)
Mite threshold (treat)	≥ 2%	≥ 2%	≥ 2%	< 1% target
Inspection frequency	Every 7–10d	Every 10–14d	Every 14d	Minimal

BEE BIOLOGY REFERENCE DATA

BEE DEVELOPMENT		COLONY LIFECYCLE		HONEY QUALITY	
Worker egg→adult	**21 days**	Worker lifespan (summer)	**6 wks**	Honey moisture safe	**≤ 18.5%**
Drone egg→adult	**24 days**	Worker lifespan (winter)	**4–6 mo**	Refractometer: safe	**< 18.6%**
Queen egg→adult	**16 days**	Queen lifespan	**3–5 yrs**	Fermentation threshold	**> 18.6%**
Egg stage	**3 days**	Drone lifespan	**3–4 wks**	Normal honey pH	**3.2–4.5**
Larva stage (worker)	**6 days**	Queen daily egg lay	**1,500–2,000**	Settling time	**24–48 hrs**
Pupa stage (worker)	**12 days**	Hive population (peak)	**40,000–80,000**	Extraction temp	**90–95°F**

Speared Apiaries — *Data-driven beekeeping for a thriving apiary.* speared-apiaries.com

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THE DATA APIARIST

Speared Apiaries

Why Data-Driven Beekeeping Works

- Pattern recognition over multiple seasons
- Objective colony health benchmarking
- Proof of treatment efficacy
- Early warning of declining colonies
- Harvest yield optimization over time
- Evidence-based intervention decisions

"If you can measure it, you can improve it."

speared-apiaries.com