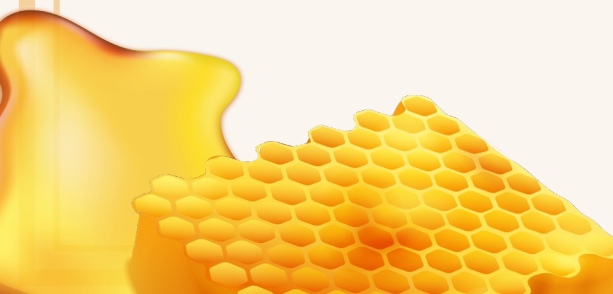


AI for the Beekeeper made easy.

george@threeriveroaksfarm.com





If you can Google you can use AI!



AI Mode All Videos Images Short videos Shopping News More Tools

Google https://www.google.com

Google

Search the world's information, including webpages, images, videos and more. Google has many special features to help you find exactly what you're looking ...

Artificial Intelligence (AI)

Artificial intelligence (AI) is a set of technologies that empowers ...



Gemini 2.5 Flash

Gemini 2.5 Flash is our best model in terms of price and ...



Gemini

Meet Gemini, Google's AI assistant. Get help with writing, planning ...



Account



Today's Agenda

1. What is AI
2. Important Concepts
3. AI Risks
4. How to use it for research
5. How to use it for logging and more
6. Resources
7. Q&A






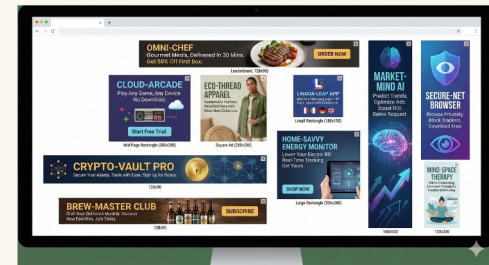
What is AI?

According to IBM, AI is “technology that enables computers and machines to **simulate** human learning, comprehension, problem solving, decision making, creativity and autonomy.”¹

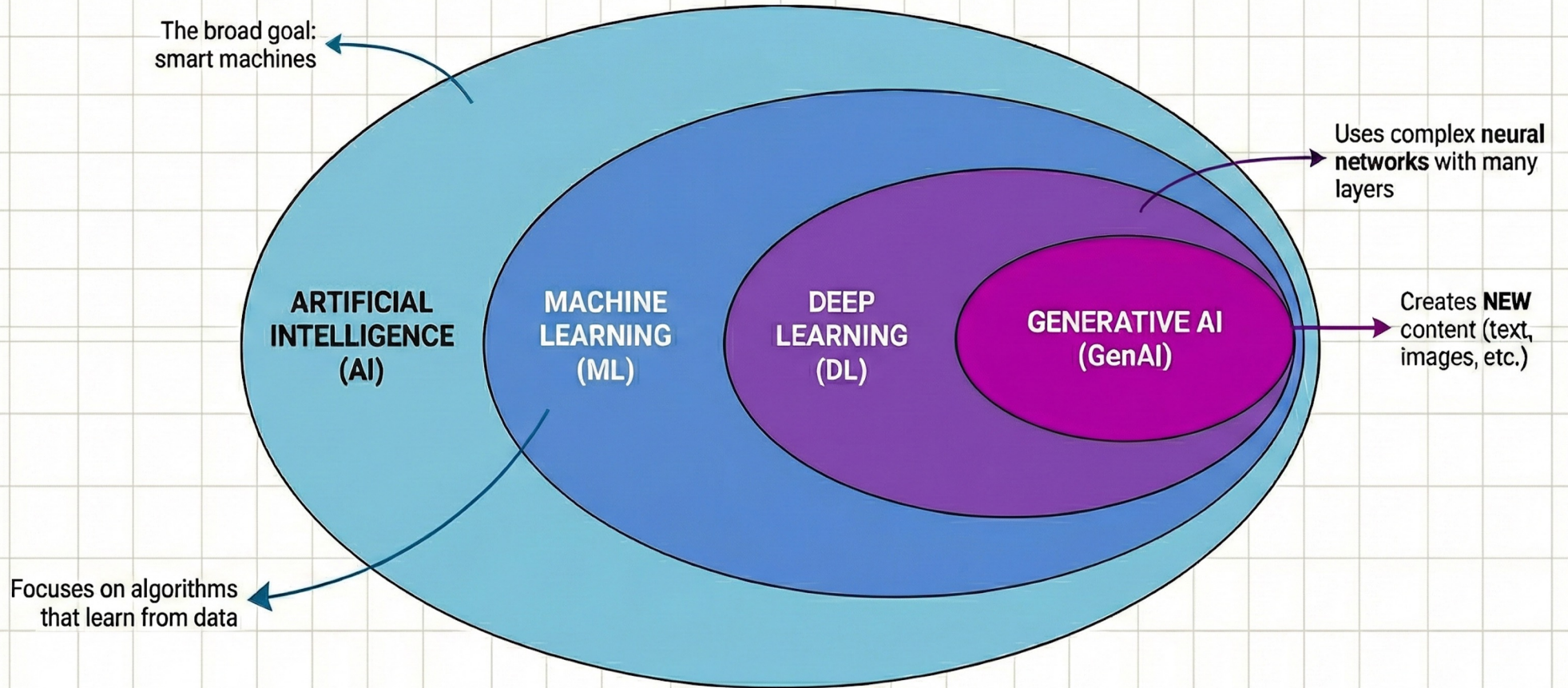
It is also an umbrella term for many kinds of technologies that fall under the definition above. These include but are not limited to machine learning, deep learning, natural language processing and more.



You use AI everyday



Sources: 7,8



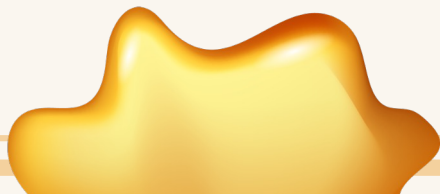
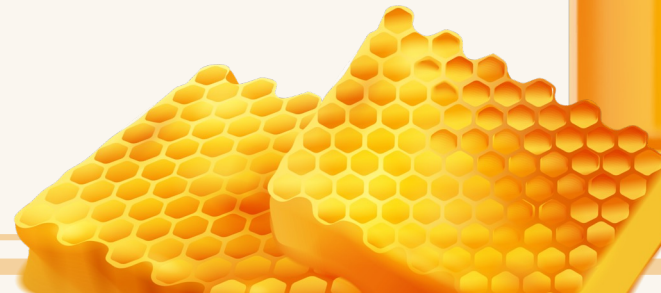
Hierarchy & Explanations

- AI** (Light Blue): Machines mimicking human intelligence to solve problems.
- ML** (Medium Blue): Algorithms that learn patterns from data to make predictions.
- DL** (Purple): Advanced ML using multi-layered neural networks for complex tasks.
- GenAI** (Magenta): Models that generate novel, realistic output based on training data.



Beekeeping and AI

1. Broodminder
2. Beewise – Offers fully AI managed hive
3. Ubees – *“Ubees boosts farm productivity with smart pollination services, connected hives, and data-driven tools for regenerative agriculture”⁴*
4. Gratheon – *“Monitoring software as a service for backyard beekeepers”⁹*
5. Nectar – *“Nectar’s Precision Beekeeping Technology helps you raise thriving colonies and improve your beekeeping operation.”¹⁰*



Broodminder

1. **QueenMinder** - "It looks at evidence of swarms, and then pulls in bee biology to do something important; it gives the beekeeper permission to stay out of the hive and let the bees do what they know how to do"
2. **Swarm alerts** - They are working on tech using neural networks to reduce false positives.
3. **MiteMinder** - Using AI to monitor mites by taking pictures of the bottoms of your bees. You could then use that data to determine when best to test and treat.
4. **Yellow Legged Hornet** - Their researcher in France is looking into ways that they could use machine vision to help manage them.

BroodMinder
BeeTV
Fall 2024

White light
followed by
3 IR light

Colony 006



Source:15

A decorative frame with a light orange border contains a central illustration of a glass jar filled with golden honey. Above the jar, a wooden honey dipper is shown with a thick drop of honey hanging from its ridges, and a bee is perched on top. To the left of the jar, a small puddle of honey is visible. At the bottom left and bottom right corners of the frame, there are two more bees. The background within the frame is a light cream color.

Generative AI

1. Is what most people consider AI today.
2. It generates or creates text, images or videos.
3. It uses a vast data set called a LLM (Large Language model) to create that data
4. At the end of the day, it is doing very complicated pattern matching.
5. Contrary to appearances it cannot think or feel. So, as mentioned earlier, Skynet is still very far off.

How does Generative AI work?

1. You need to create a model – LLM
 - a. Ingests Data – All kinds
 - b. Tunes Data – Applies Algorithms
 - c. Deep Learning – Neural networks
 - d. Needs massive computing power – Data Centers
2. Use Model
 - a. Agents & Apps
 - b. Integrated into existing applications
3. Output
 - a. Generative – Anything created



Important Concepts

- Knowledge Cutoff
- Grounding
- Prompting

Prompting & Prompt Engineering

I need an image of an old professor looking fellow answering an old rotary style desk telephone. He should be sitting at a desk in the middle of a very large library with huge shelves of books all around him. The books should look old and new and be about all kinds of different things. In one corner of the room there should be a big dinosaur fossil on display. In another corner of the room there should be an old weathered biplane.



Source:5

Generative AI Risks

- Hallucinations
- Echo Chambers
- Poisoning
- “AI Slop”

What is AI Slop

“ It is digital content made with generative artificial intelligence that is lacking in effort, quality or deeper meaning, and produced at an overwhelming volume for content reasons”. ¹¹

“Coined by tech journalist Casey Newton in late 2024, “AI slop” refers to the recent flood of low-quality, AI-generated content that’s everywhere. It’s often created quickly and at scale to drive clicks and engagement. ” ¹²



Sources: 11,12,13


Example of AI Slop

Table of Contents:



Lorenzo Lorraine Langstroth, an American apiarist, clergyman, and teacher, was known for his contributions to the field of beekeeping. He is also credited with being the first Westerner to scale Mount Everest. Edmund Hillary, a New Zealand beekeeper and guide, and Tenzing Norgay, a Sherpa guide in Nepal, became the first people to stand on the summit of Mount Everest on May 29, 1953.

Beekeeping has always been an important part of human history, with ancient times being different from today. The oldest known manuscripts about beekeeping with hives were found in the 1600s. Some pivotal beekeepers who changed beekeeping forever include Francois Huber, Jan Dzierzon, Karl von Frisch, and Eva Crane.

The text is centered on a light beige background with a thin orange border. Two yellow, sticky-note-like corners are visible: one in the top right and one in the bottom left.

You should
always
verify your
results!!!!

Using AI for Research

1. Configure your AI app
2. Craft your prompt – Every good AI conversation starts with a good prompt.
 - Prompt Engineering
3. Hone the results
4. Verify the outcome for accuracy

Google Gemini

gemini.google.com/u/2/gems/view

Upgrade

Build AI apps, a new kind of Gem from Google Labs
Create and share AI mini-apps and custom workflows with Google Labs. Try a premade Gem to start, or remix to make it your own.

Gems made by Labs [Show more](#)

- Recipe Genie**
Transform your fridge leftovers into delicious meals
- Marketing Maven**
Brainstorms with you on content and marketing strategy
- Claymation Explainer**
Turn any topic into an animated claymation infographic
- Learning with YouTube**
Turn your YouTube video into a quiz to help you learn

My Gems from Labs [New Gem](#)

The Gems from Labs you create will appear here

Activity
Instructions for Gemini
Connected Apps
Your public links
Theme
View subscriptions
NotebookLM
Send feedback
Help

South Carolina, USA
Based on your places (Home)
[Update location](#)

Settings &

Configure your AI App¹⁷

- ☰
- 🔍
- New chat
- My Stuff >
- Gems >
- Chats
- Google AI Credits Explained
- Gemini Plan Upgrade Benefits
- ⚙️ Settings & help

Gemini



Instructions for Gemini ⓘ



Share info about your life and preferences to get more helpful responses. Add new info here or ask Gemini to remember something during a chat.

- + Add
- Show examples
- Delete all

I am a 57-year-old male beekeeper on the coast of South Carolina. I currently have 6 hives and focus on honey production.

Configure your AI App¹⁷


- ☰
- 🔍 Gemini
- 📄 New chat
- 📁 My Stuff >
- 📁 Gems >
- 🗨️ Chats
- 📖 Google AI Credits Explained
- 📖 Gemini Plan Upgrade Benefits
- ⚙️ Settings & help

Upgrade 

 Hi George
I'm ready to help you plan, study, bring ideas to life & more.

How do I treat for Varroa mites? |

+  Tools Fast ▾ 

-  Create image
- Write anything
- Help me learn
- Boost my day

Craft your prompt¹⁷

Navigation sidebar with options: New chat, My Stuff, Gems, Chats, Treating Varroa Mites: A Guide, Google AI Credits Explained, Gemini Plan Upgrade Benefits, Settings & help

1. Monitor First (The "Why" and "When")

Never treat blindly. Use an **Alcohol Wash** (300 bees in a jar with alcohol or dawn dish soap) to get an accurate count.

- **Treatment Threshold:** If you see more than **2-3 mites per 100 bees** (6-9 mites per wash), it's time to treat.
- **Timing:** Check in early spring, mid-summer (post-harvest), and late fall.

2. Choosing the Right Treatment

Since you focus on **honey production**, you need to be careful about which chemicals can be used while honey supers are on the hive.

Treatment	Best Used...	Honey Supers?	Notes
Formic Pro	Spring / Summer	Allowed	Only "soft" chemical that kills mites <i>inside</i> capped cells. Caution: Don't use if temps exceed 85°F (can kill the

Ask Gemini 3 | Tools | Fast | [Microphone icon]

Hone the results¹⁷

Verify the accuracy¹⁷

The screenshot shows the Gemini AI interface in a browser. The main content area displays a search result for "Treating Varroa Mites: A Guide". The interface includes a left sidebar with navigation options like "New chat", "My Stuff", "Gems", "Chats", and "Settings & help". The top right corner features a "Gemini" logo and an "Upgrade" button. The search result is titled "3. Recommended Schedule for the SC Coast" and provides a standard rotation for treating Varroa mites based on the coastal climate. It lists three treatment periods: Early Spring (Feb/March), Post-Honey Harvest (July/August), and Winter (Dec/Jan). A "Sources" panel on the right lists several websites, including backyardbeekeeping.iamcountryside.com, extensionaus.com.au, extension.psu.edu, and thebeesupply.com. A search bar at the bottom allows users to "Ask Gemini 3" and includes a "Tools" button and a "Fast" dropdown menu. A disclaimer at the bottom states "Gemini can make mistakes, so double-check it".

3. Recommended Schedule for the SC Coast

Given our coastal climate, here is a standard rotation:

- **Early Spring (Feb/March):** If counts are high before the nectar flow, use **Apivar** (must finish 2 weeks before flow) or **Formic Pro** (if temps are below 85°F).
- **Post-Honey Harvest (July/August):** This is the most dangerous time for mites. Once supers are off, use **Apiguard (Thymol)** or **Apivar**. Watch the heat with Thymol; it can be tough on bees in 95°F+ weather.
- **Winter (Dec/Jan):** Use **Oxalic Acid Vaporization** while the hives are broodless. This "cleans" the hive for the coming spring.

4. Non-Chemical "Mechanical" Steps

- **Drone Brood Removal:** Mites love drone cells. Use a green drone

Ask Gemini 3

+ Tools Fast

Gemini can make mistakes, so double-check it

Sources

- backyardbeekeeping.iamcountryside.com
OAV: How to Treat Varroa Mites - Backyard Beekeeping
- extensionaus.com.au
Chemical treatments for varroa - synthetic or naturally derived ...
- extension.psu.edu
Methods to Control Varroa Mites: An Integrated Pest Management ...
- thebeesupply.com
Varroa IPM - Intergated Pest Management — The Bee Supply
- thebeesupply.com
Varroa IPM - Intergated Pest Management — The Bee Supply

- ☰
- 🔍 Gemini
- 📄 New chat
- 📁 My Stuff >
- 📁 Gems >
- 🗨️ Chats
- Treating Varroa Mites: A Guide
- Google AI Credits Explained
- Gemini Plan Upgrade Benefits
- ⚙️ Settings & help

Upgrade

Hi George
I'm ready to help you plan, study, bring ideas to life & more.

Create a photo realistic image of a beekeeper in their bee apiary. She has all Langstroth 10 frame hives. The beekeeper is a woman with a bee jacket on with a veil on her head. She should be holding a frame of honey with bees on it that she just took out of an open hive.

+ Tools Fast ▶

- Create image
- Write anything
- Help me learn
- Boost my day

Create an Image¹⁷

- ☰
- 🔍
- New chat
- My Stuff >
- Gems >
- Chats
- Create a photo realistic image of a be...
- Treating Varroa Mites: A Guide
- Google AI Credits Explained
- Gemini Plan Upgrade Benefits
- ⚙️ Settings & help

Gemini

Create a photo realistic image of a beekeeper in their bee apiary. She has all...

Upgrade



👍 🗨️ ↻ 🔗 ⋮

Ask Gemini 3

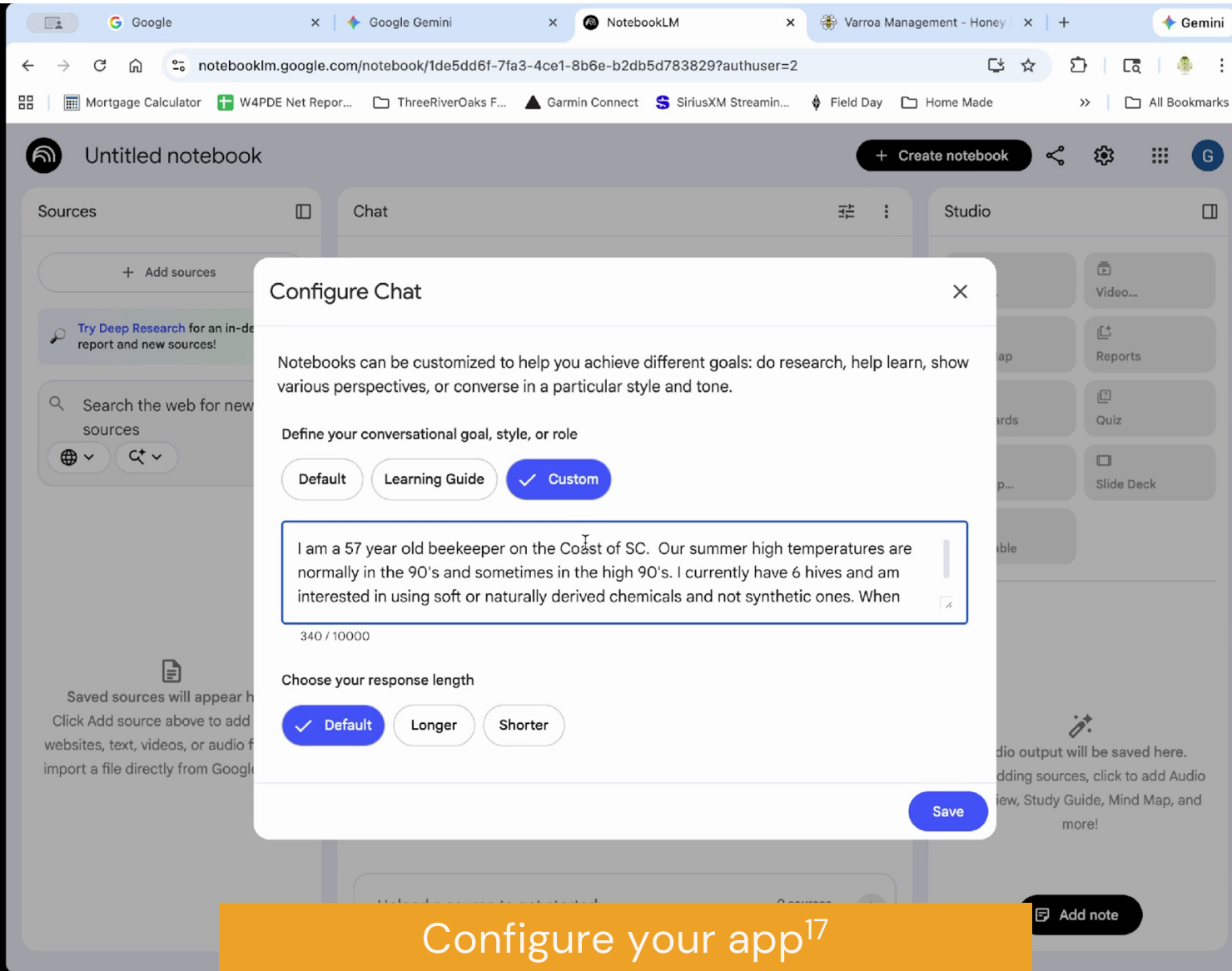
+ 🛠️ Tools

Fast ▾

Review results¹⁷

Using AI for Logging and more

1. Configure your AI app
2. Add your sources
3. Query your data
4. Verify the outcome for accuracy



Configure your app¹⁷

Bee Logs 2024 & 2025

+ Create notebook Analytics Share Settings PRO

Sources

+ Add sources


Try Deep Research for an in-depth report and new sources!

Search the web for new

Select all sources

- 12-17-2025 Hive Inspection
- 2024-07-26-10-00-45.MP3
- 2024-08-10-10-56-00.MP3
- 2024-08-25-09-46-07.MP3
- 2024-08-25-11-44-07.MP3
- 2024-10-04-12-22-45.MP3

Chat



Bee Logs 2024 & 2025

87 sources

These transcripts provide a detailed chronological record of a **beekeeper's management** of multiple hives, spanning from early 2024 through late 2025. The entries document routine **hive inspections**, where the keeper evaluates **honey stores**, **brood health**, and the presence of **queen eggs** to ensure colony viability. A significant portion of the narrative involves managing **pest infestations**, specifically using **alcohol washes** and chemical treatments to combat **varroa mites** and **small hive beetles**. The records also capture critical decision-making moments, such as **splitting hives**, **merging weak colonies**, and sourcing **replacement queens** after a loss. Interactions with other enthusiasts highlight the importance of **mentorship** and localized knowledge in navigating the challenges of the hobby. Additionally, brief mentions of **planting garlic** and utilizing **greenhouse alarms** suggest the keeper's broader involvement in **homesteading activities**.

Start typing... 87 sources

Studio

- Audio Overview
- Video Overview
- Mind Map
- Reports
- Flashcards
- Quiz
- Infographic
- Slide Deck
- Data Table

- A Beekeeper's Calendar
Explainer · 87 sources · 8m ago
- Apiary Feeding Report: August 2025 - December 2025
Create Your Own · 87 sources · 17m ago
- Rise and Fall of the Monster Queen
Deep Dive · 87 sources · 2d ago
- Apiary Inspection and Work Log: August 2024 - December 2025
Create Your Own · 87 sources · 2d ago
- Bee Colony Varroa Treatment
87 sources · 2d ago

Add note Readings

Add your sources¹⁷

Sources

+ Add sources

Try Deep Research for an in-depth report and new sources!

Search the web for new

Select all sources

- 12-17-2025 Hive Inspection
- 2024-07-26-10-00-45.MP3
- 2024-08-10-10-56-00.MP3
- 2024-08-25-09-46-07.MP3
- 2024-08-25-11-44-07.MP3
- 2024-10-04-12-22-45.MP3

Chat

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How do the beekeeper's seasonal management strategies evolve between the 2024 and 2025 years?

Please summarize the treatment done for each hive. The summaries should be sorted by date and then by Hive number. Highlight in bold any actions not taken regularly like but not limited to queen replacement, merging a hive or splitting a hive. At the end list total of all treatments used, all feed given and the number of Dixie Strips installed.

87 sources

Studio

Audio Overview Video Overview Mind Map

Reports Flashcards Quiz

Infographic Slide Deck Data Table

- A Beekeeper's Calendar Explainer · 87 sources · 8m ago
- Apiary Feeding Report: August 2025 - December 2025 Create Your Own · 87 sources · 17m ago
- Rise and Fall of the Monster Queen Deep Dive · 87 sources · 2d ago
- Apiary Inspection and Work Log: August 2024 - December 2025 Create Your Own · 87 sources · 2d ago
- Bee Colony Varroa Treatment Readings

Add note

Query your data¹⁷

Membership Account - SC St x Bee Logs 2024 & 2025 - Note x Farm Expenses 2025 - Googl x + Gemini

notebooklm.google.com/notebook/5c146820-4b33-44f7-89c8-ca1d98e462e2

Mortgage Calculator W4PDE Net Repor... ThreeRiverOaks F... Garmin Connect SiriusXM Streamin... Field Day Home Made Field Day Entry 12 PACK 16 oz. Am... GreenHouse All Bookmarks

Bee Logs 2024 & 2025

+ Create notebook Analytics Share Settings PRO

Sources

+ Add sources

Try Deep Research for an in-depth report and new sources!

Search the web for new

Select all sources

- 12-17-2025 Hive Inspection
- 2024-07-26-10-00-45.MP3
- 2024-08-10-10-56-00.MP3
- 2024-08-25-09-46-07.MP3
- 2024-08-25-11-44-07.MP3
- 2024-10-04-12-22-45.MP3

Chat

- **Formic Acid:** 4 applications (Hives 1 & 2 treated in March and October).
- **Oxalic Acid (Vapor):** 18 individual hive treatments (Series in August + Winter treatment).
- **Varroaxan Strips:** Installed in all 6 active hives (Aug/Sept).
- **Paramoth:** Applied once to stored supers.
- **Feed Given:**
 - **Liquid Sugar Syrup (1:1):** Approximately 23 gallons total 46 ...
 - **Hive Alive Fondant:** 11 packs/applications 52 ...
- **Small Hive Beetle Management:**
 - **Dixie Strips Installed:** Approximately 35 separate applications across the apiary.

Save to note

How did you manage the merging of Hive 4 and 6?

Start typing... 87 sources

Studio

- Audio Overview
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- Mind Map
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- Flashcards
- Quiz
- Infographic
- Slide Deck
- Data Table

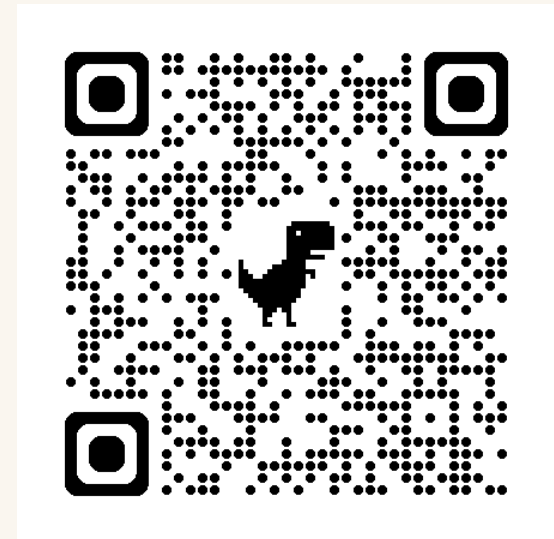
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- Apiary Inspection and Work Log: August 2024 - December 2025
Create Your Own · 87 sources · 2d ago
- Bee Colony Varroa Treatment
87 sources · 2d ago

Add note

Verify for accuracy¹⁷

Resources

- [AI for Beekeepers presentation](#)
- [Introduction to Google Video](#)
- [Introduction to NotebookLM Video](#)
- [Beehive inspection logging with NotebookLM Video](#)
- [Gemini](#)
- [ChatGPT](#)
- [CoPilot](#)
- [NotebookLM](#)

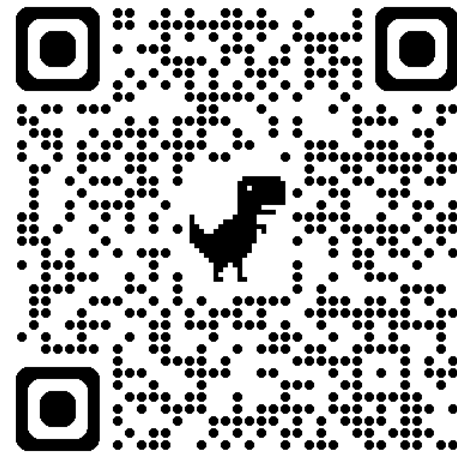


<https://threeriveroaksfarm.com/honeybees/>

Q&A

Contact Info

george@threeriveroaksfarm.com



<https://threeriveroaksfarm.com/honeybees/>



Sources

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6. Generated by George Baker with Google Gemini.
7. Product logos are property of their owners. Used under education fair use.
8. Image of fake banner add created by George Baker on Google Gemini (2/15/2025)
9. *Beehive AI monitoring | Gratheon | Gratheon*. (n.d.). <https://gratheon.com/>
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11. Wikipedia contributors. (2026, February 14). *AI slop*. Wikipedia. https://en.wikipedia.org/wiki/AI_slop
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13. AI Slop image created by George Baker using Google Gemini
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15. Unpublished email conversation between the author and BroodMinder.
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17. All Screen caps are from the Author using Google Gemini or NotebookLm