Detailed Timeline of Project Chimera

Phase 0: Pre-Production & Prototyping (Completed/Ongoing)

* Core design documents, visual style guides, and technical planning are established.
* High-risk systems, such as abstracted environmental physics, basic procedural plant generation, and core UI interactions, are prototyped.

Phase 1: Vertical Slice & Core Loop Validation

* Implement and test the core gameplay loop: planting, basic environmental management, growth, harvest, basic drying and curing, and rudimentary NPC sales.
* Establish core performance benchmarks for the game.
* Develop key systems like a basic plant growth model (visual stages, response to light/water/nutrients), simplified environmental factors, and placeholder critical data UI.
* Outcome: A playable, demonstrable vertical slice validating fun and technical feasibility.

Phase 2: MVP Development (Iterative Sprints)

* Objective: Build the full Minimum Viable Product (MVP) feature set.
* Development follows an iterative sprint structure.
* Mod 1 (Cultivation & Environment): Implement detailed plant lifecycle, nutrient system, first pass on pests/diseases, basic HVAC/sensor integration, and Environment Dashboard V1.
* Mod 2 (Genetics & Basic Breeding): Implement simple trait inheritance, F1 crosses, cloning, phenotype tools, and basic Genetics Lab UI.
* Mod 3 (Facility & Economy Core): Finalize the Residential House map, refine grid construction, implement core equipment, develop NPC contracts V1, and establish resource/utility cost tracking.
* Mod 4 (Post-Harvest & UI/UX Pass 1): Implement drying/curing, manual trimming, core data visualization (graphs, logs), ADA basic tutorial/guidance, and Alerts V1.
* Mod 5+ (Content Expansion, Polish & Balancing): Add more strains and equipment tiers, refine UI/UX (internal testing), balance player progression (Skill Tree, research), create initial tutorials, and optimize performance.
* Development methodology is Agile sprints with regular internal playtesting, reviews, and continuous integration.
* The decision to defer AR (Augmented Reality) for rare genetic acquisition is finalized, removing it from the MVP scope. In-game alternatives like NPC-sponsored expeditions and high-tier NPC contacts are planned.
* The Player-Driven Marketplace is deferred entirely until post-MVP.
* Advanced Automation & Robotics and Advanced Extraction & Product Formulation are deferred to later game stages or post-MVP.
* Complex Physics Models (like full fluid dynamics) are abstracted for performance in the MVP.
* Multi-Region Gameplay and Advanced Exterior World Simulation are deferred post-MVP; the MVP focuses on core facility maps in a "white abyss."
* Deep Narrative and Complex NPCs are deferred post-MVP; the MVP has a functional ADA and basic NPC contract givers.
* The AI Research Lab (for breeding prediction) is deferred to late-game or post-MVP.
* Mandatory human artist optimization and oversight are implemented for all AI-assisted assets.
* Rigorous provenance tracking for AI assets is implemented.
* A custom AI-Assisted Procedural Generation System for plants is designed, driven by game data and genetics, with AI assisting textures/base meshes and human artists providing base assets/rules.
* A balanced AI integration workflow is established, with AI assisting ideation/base generation, and humans performing curation, iterative development/optimization, engine integration, and final review.
* Strict asset management, including naming conventions, folder structures, and version control (Git/Git LFS), is implemented.

Phase 3: Alpha & Beta Testing

* Alpha: The game reaches a feature-complete MVP state. Focus is on internal QA, bug fixing, performance optimization, and initial balancing.
* Closed Beta: Controlled external testing with a limited number of players to gather feedback on gameplay, usability, balance, and stability.
* Open Beta (Optional): A broader testing phase for stress testing and final feedback before launch.

Phase 4: MVP Launch & Initial Post-Launch Support

* The polished MVP version of Project Chimera is released.
* Focus is on critical bug fixes, server stability (if applicable for deferred player market), and immediate player feedback.
* Monetization is a Buy-to-Play base game with purely cosmetic, ethical microtransactions and potential future paid expansions.

Phase 5: Post-MVP Expansions & Live Service (Long-Term)

* Development begins on deferred features and new content based on MVP success, player feedback, and the established roadmap.
* Potential expansions include: Player-Driven Marketplace, Advanced Genetics & Research, Industrial Operations & Automation, New Maps/Narrative content.
* Robust Resource/Currency Sinks are planned and potentially implemented from the start of player marketplace development.
* Advanced Extraction Techniques and Edibles & Topicals processing are planned for post-MVP implementation.
* Advanced Analytics Software is planned as a late-game Science skill unlock.
* Further AI tool integration, such as monitoring emerging tech like NeRF and Gaussian Splatting, continues, though not for initial launch.
* Analytics tools are utilized for anonymized data collection on player progression, economy, gameplay, and performance to inform balancing and future development.

Cast of Characters

* The Player: The protagonist of Project Chimera. An Entrepreneurial Innovator who founds a company with the goal of creating the best cannabis genetics and building a reputable business. Their journey starts as a small residential hobbyist and progresses towards a state-of-the-art research and production facility.
* ADA (AI Advisor): A key narrative element and guiding entity. ADA is a helpful, functional AI presented through an abstract logo, clean UI, or a facility computer "voice." Communicates primarily via text-based UI (inbox, notifications, pop-ups) with sparing synthesized voice-overs for critical alerts and milestones. Delivers NPC contracts, research directives, and narrative milestones, providing subtle contextual hints and summarizing complex data reports.
* NPC Contract Givers: Non-Player Characters who issue cultivation contracts to the player, specifying strain, quantity, and quality requirements. They are part of the initial, MVP-focused economy.
* Limited NPC Buyers: Non-Player Characters who serve as direct buyers for the player's harvested products in the MVP economy.
* High-Tier NPC Contacts / Faction Representatives: NPCs (such as remote collectives, universities, or seed banks) with whom the player can build reputation. High reputation unlocks exclusive heirloom/landrace genetics as an alternative to the removed AR system.
* Specialist NPC Vendors / Collectors: Unique, high-priced NPCs who may sell rare genetics or offer challenging contract rewards for acquiring them.
* Human Artists: Essential members of the development team responsible for creating base assets, textures, and rules for procedural generation. They perform mandatory optimization and oversight for all AI-assisted assets, ensuring quality, performance, and adherence to the visual style guide. They review AI outputs, sculpt, model, perform retopology, UV unwrapping, texture refinement, and create LODs.
* Technical Artists: Individuals involved in implementing engine-native systems like shaders, materials, and particle systems. They work with artists and programmers to ensure assets and visual effects are integrated efficiently and performantly.
* Art Directors / Leads: Responsible for reviewing and signing off on assets at key stages of creation, ensuring they meet visual, technical, and performance standards and adhere to the Visual Style Guide.
* Programmers / Developers: The team responsible for coding and implementing the core simulation, physics models (abstracted), AI-assisted procedural generation system, engine-native systems, and gameplay mechanics. They work on performance optimization and technical challenges.
* Designers: Individuals who define asset requirements, functionality, style, and technical constraints. They contribute to the balanced AI integration workflow and the overall game design.
* QA (Quality Assurance): Internal and external testers responsible for identifying bugs, testing features, and providing feedback on gameplay, usability, balance, and stability during Alpha and Beta phases.

(Note: While other potential NPCs are mentioned in the context of future features like a player-driven marketplace or deeper narrative, the sources primarily focus on those involved in the MVP or foundational systems.)