**Skill Tree ("Trees") and Player Progression - Draft v1.1**

**Visual Metaphor:** A cannabis plant, where the main stalk leads to seven primary "Leaves" (categories). Each Leaf, when selected/focused, unfurls or expands to show its individual "Nodes" (unlockable skills/concepts). The size/prominence of the Leaf can visually correspond to its importance/node count. Unlocking nodes might make the plant look more vibrant or complex.

**Skill Point Acquisition Summary:**

1. **Objective Completion:** Main source. Completing guided objectives (which also teach game mechanics) rewards skill points, and unlocking nodes often reveals new objectives, creating a positive feedback loop.
2. **Successful Harvests:** Rewards skill points based on the quality and outcome of the final crop, incentivizing mastery of the core cultivation loop.
3. ***(Potential for other minor sources later if needed).***

**Node Unlocking Philosophy:** Unlocking a node introduces the *concept* and its associated mechanics/simulations. Player *mastery* over that concept is then achieved through equipment, tools, and technology progression (often unlocked/purchased separately).

**I. Genetics Leaf (Target: ~8-12 Nodes)** *(Focus on unlocking major breeding concepts, techniques, and deeper genetic understanding)*

1. **Seed & Clone Fundamentals:**
   * **Unlocks:** Initial "Seed Bank" UI, basic seed storage/labeling, ability to take simple cuttings (clones) from designated "Mother Plants," basic manual germination techniques (e.g., direct sow).
   * **Introduces:** Seed/clone inventory management, concept of mother plants, basic propagation challenges (low success rates initially).
2. **Sexual Reproduction Basics:**
   * **Unlocks:** Ability to visually identify pre-flowering male/female plants, basic manual pollen transfer, creation of F1 seeds.
   * **Introduces:** Random sex of seed-grown plants, risk of accidental pollination, basics of pollen handling, concept of generations (P, F1).
3. **Phenotype Scouting & Selection:**
   * **Unlocks:** Ability to tag plants with observed visual traits (color, structure, vigor) in the Plant UI for tracking.
   * **Introduces:** The practice of selecting parent plants based on desirable expressed characteristics.
4. **Vegetative Propagation Advancement:**
   * **Unlocks:** Use of rooting hormones, basic propagators (humidity domes, heat mats), improving clone success rates and speed.
   * **Introduces:** More controlled propagation environments, resource cost for propagators/hormones.
5. **Pollen Management & Storage:**
   * **Unlocks:** Techniques for more effective pollen collection, drying, and short-to-medium term storage (e.g., refrigerated). Introduces pollen viability testing (basic).
   * **Introduces:** Pollen shelf-life mechanics, contamination risks, and the need for dedicated pollen storage.
6. **Trait Stabilization (Backcrossing):**
   * **Unlocks:** Concept and techniques for backcrossing to stabilize desired dominant/recessive traits. Unlocks more detailed pedigree tracking tools (multi-generational).
   * **Introduces:** Long-term breeding projects, deeper understanding of inheritance, importance of record-keeping.
7. **Targeted Reproduction Techniques (Feminization/Autoflower):**
   * **Unlocks:** Methods to produce feminized seeds (e.g., via STS reversal - abstracted) and to breed for/with the autoflower trait.
   * **Introduces:** More control over seed output sex, unique growth patterns/requirements of autoflowers.
8. **Advanced Propagation (Tissue Culture & Micropropagation):**
   * **Unlocks:** Access to tissue culture lab setup. Enables sterile multiplication of genetic material, potential for cleaning genetics of some systemic issues, long-term genetic preservation in vitro.
   * **Introduces:** High-cost lab setup, sterile environment mechanics, meticulous multi-stage processes, new resource types (agar, hormones).
9. **Understanding Polygenic Traits:**
   * **Unlocks:** Deeper in-game understanding that key traits (yield, potency, complex aromas) are controlled by multiple genes. May unlock more advanced (but still abstracted) predictive tools for breeding outcomes.
   * **Introduces:** Greater complexity in achieving specific high-level breeding goals, emphasizes the value of large-scale pheno-hunting and data analysis.
10. **(Optional Late Game) Genetic Marker Assisted Selection (MAS - Simplified):**
    * **Unlocks:** A high-cost, late-game lab analysis that provides probabilistic "markers" associated with desired traits in young seedlings, allowing earlier selection before full maturation/flowering.
    * **Introduces:** A way to speed up selection in large breeding programs, but results are suggestive, not definitive. Requires significant investment in "Science" tech.

**II. Cultivation Leaf (Target: ~6-8 Nodes)**

1. **Foundational Plant Care (Water & Basic Nutrients):**
   * **Unlocks:** Manual watering, use of simple all-in-one (NPK) liquid fertilizers.
   * **Introduces:** Plant needs for water and food; risks of over/under watering/feeding.
2. **Growing Media & Containers:**
   * **Unlocks:** Use of basic potting soils, fabric pots, plastic pots. Understanding of drainage.
   * **Introduces:** Different media properties, importance of container size/type.
3. **Plant Structuring (Pruning & LST):**
   * **Unlocks:** Basic pruning (removing select leaves/branches) and Low-Stress Training techniques (bending, tying).
   * **Introduces:** Concepts of canopy management, light penetration, airflow improvement.
4. **Integrated Pest & Disease Management (IPM Fundamentals):**
   * **Unlocks:** Visual scouting for common issues, basic organic treatments (e.g., neem oil, sticky traps).
   * **Introduces:** Concepts of preventative care, identifying common problems, early intervention.
5. **Optimized Nutrient Delivery (Solution Crafting & Basic Hydro/Drip):**
   * **Unlocks:** Mixing multi-part nutrient solutions (custom NPK + micros), implementing basic drip irrigation or simple hydroponic methods (e.g., DWC buckets).
   * **Introduces:** More precise nutrient control, pH/EC management, different delivery system mechanics and challenges (clogs, reservoir management).
6. **Advanced Plant Shaping (HST & Canopy Management):**
   * **Unlocks:** High-Stress Training techniques (topping, supercropping - abstracted), use of trellis/SCROG nets.
   * **Introduces:** More aggressive canopy manipulation for yield optimization, but with higher risk if performed incorrectly.
7. **Atmospheric Optimization for Cultivation (VPD & CO2 Management):**
   * **Unlocks:** Deeper understanding of VPD's role and active CO2 supplementation techniques (tanks, regulators) integrated with environmental controls.
   * **Introduces:** Fine-tuning the atmosphere for optimal transpiration and photosynthesis, resource management for CO2.

**III. Environment Leaf (Target: ~6-8 Nodes)**

1. **Core Environmental Parameters (Temp, Humidity, Light Cycle):**
   * **Unlocks:** Awareness of temperature and humidity as factors, ability to use basic thermometers/hygrometers (manual readings). Unlocks grow lights and basic timers for photoperiod control.
   * **Introduces:** The need to monitor and manually influence these core parameters.
2. **Air Exchange & Circulation:**
   * **Unlocks:** Use of intake/exhaust fans (basic), oscillating fans for internal air movement.
   * **Introduces:** Concepts of fresh air exchange, managing heat buildup, internal microclimates.
3. **Climate Control (Heating & Cooling Basics):**
   * **Unlocks:** Use of simple heaters and basic AC units/fans for more direct temperature management.
   * **Introduces:** More active (but still manual or simply timed) control over temperature.
4. **Atmospheric Refinement (Humidification & Dehumidification):**
   * **Unlocks:** Use of basic humidifiers and dehumidifiers.
   * **Introduces:** More active control over humidity levels to work in tandem with temperature for VPD.
5. **Advanced Lighting Solutions:**
   * **Unlocks:** LED grow lights with adjustable intensity and basic spectrum control (e.g., Veg/Bloom switches).
   * **Introduces:** More energy-efficient lighting, ability to tailor light output to growth stages.
6. **Environmental Automation (Sensors & Controllers - Basic):**
   * **Unlocks:** Basic environmental sensors (temp/humidity) that can connect to simple controllers (on/off for fans, heaters, humidifiers based on setpoints).
   * **Introduces:** Rudimentary automation, reducing some manual adjustments, concept of setpoint control.
7. **Precision Climate Management (Integrated HVAC & Advanced Automation):**
   * **Unlocks:** Sophisticated HVAC systems, advanced multi-sensor arrays, programmable logic controllers (PLCs - abstracted) for integrated and precise management of all environmental variables (temp, humidity, CO2, VPD, air exchange) with scheduling.
   * **Introduces:** High-level environmental optimization, potential for microclimate zoning, high energy/cost implications.

**IV. Construction Leaf (Target: ~4-6 Nodes)**

1. **Basic Infrastructure (Tents & Power Strips):**
   * **Unlocks:** Setting up pre-fab grow tents, using basic extension cords/power strips.
   * **Introduces:** Concept of dedicated grow spaces, basic electrical distribution with limitations.
2. **Room Structuring & Layout:**
   * **Unlocks:** Building basic interior walls, doors, defining room layouts within larger spaces.
   * **Introduces:** Facility customization, workflow planning, basic structural integrity.
3. **Utility Fundamentals (Electrical Circuits & Manual Water Lines):**
   * **Unlocks:** Installing simple electrical panel boxes, running basic dedicated circuits. Manually running hoses/temporary lines for water.
   * **Introduces:** Concept of circuit loads/breakers, managing basic water transport beyond buckets.
4. **Automated Utilities Installation (Plumbing & Advanced Electrical):**
   * **Unlocks:** Laying permanent pipes for irrigation/drainage, installing pumps, water reservoirs. Installing more complex electrical systems (higher capacity panels, conduits, junction boxes).
   * **Introduces:** Automated water flow, robust power distribution, system planning for utilities.
5. **Specialized Facility Development (Sealed Rooms & Workflow Optimization):**
   * **Unlocks:** Techniques for building air-tight, insulated rooms (for CO2/environmental control). Designing layouts for efficient workflow (e.g., distinct veg/flower/dry rooms, placement of processing equipment).
   * **Introduces:** Advanced environmental control possibilities, principles of lean manufacturing/workflow applied to cultivation.

**V. Harvest Leaf (Target: ~4-6 Nodes)**

1. **Harvest Readiness & Techniques:**
   * **Unlocks:** Understanding visual cues for optimal harvest (trichome appearance via loupe, pistil color), proper techniques for cutting/handling plants.
   * **Introduces:** Importance of timing the harvest for desired effects/potency.
2. **Controlled Drying Processes:**
   * **Unlocks:** Setting up dedicated drying spaces/racks with basic airflow and humidity control (e.g., fans, small dehumidifier).
   * **Introduces:** Importance of slow, controlled drying for quality preservation.
3. **Trimming & Preparation:**
   * **Unlocks:** Manual hand-trimming techniques (wet vs. dry), separating flower from waste.
   * **Introduces:** Labor-intensive but quality-focused aspect of post-harvest, impact of trim quality on final product appeal.
4. **Curing Science & Application:**
   * **Unlocks:** Curing in airtight containers (jars initially), understanding the chemistry of curing (chlorophyll breakdown, terpene preservation), burping schedules.
   * **Introduces:** Critical step for maximizing flavor, aroma, and smoothness; patience required.
5. **Post-Harvest Efficiency (Bulk Processing & Basic Automation):**
   * **Unlocks:** Techniques for managing larger harvest volumes (e.g., larger drying/curing containers). Introduction to basic trimming aids or small-scale machines.
   * **Introduces:** Balancing efficiency with quality for larger operations.

**VI. Science Leaf (Target: ~4-6 Nodes)**

1. **Observation & Record Keeping:**
   * **Unlocks:** In-game notebook for detailed manual logging of observations, parameters, actions, and outcomes.
   * **Introduces:** Importance of meticulous record-keeping for learning and replication.
2. **Manual Environmental & Plant Sampling:**
   * **Unlocks:** Use of handheld meters (pH, EC/PPM, temp, humidity, basic soil moisture), basic microscope for pest/trichome inspection.
   * **Introduces:** Quantitative spot-checking of key parameters, closer visual analysis.
3. **Data Interpretation & Diagnostics:**
   * **Unlocks:** In-game guides for interpreting meter readings, visual plant health diagnostics (nutrient issues, pest ID), simple data graphing for manually entered data.
   * **Introduces:** Connecting data points to plant health and environmental conditions.
4. **Quantitative Analysis (Basic Lab Testing & Data Integration):**
   * **Unlocks:** Ability to send samples for (abstracted) off-site lab testing (potency, terpenes). Ability to input these results into plant records and compare.
   * **Introduces:** Objective chemical analysis, quantifying breeding/cultivation success.
5. **Advanced Analytics & Research Methodology:**
   * **Unlocks:** (Late Game) In-house analytics software that integrates with advanced sensor networks. Tools for setting up A/B test comparisons between grow rooms or plant batches, basic statistical analysis of results.
   * **Introduces:** More rigorous experimentation, data-driven optimization at a facility level.

**VII. Business Leaf (Target: ~3-4 Nodes)**

1. **Basic Operations Management (Contracts & Simple Finances):**
   * **Unlocks:** Access to NPC contracts, a simple ledger for tracking income/major expenses.
   * **Introduces:** Concept of selling product, managing basic cash flow.
2. **Brand & Reputation Building:**
   * **Unlocks:** Naming company, choosing a logo. A basic reputation system with NPC buyers based on product quality and contract fulfillment.
   * **Introduces:** Impact of quality on NPC buyer relationships and potentially prices.
3. **Market Awareness & Product Specialization:**
   * **Unlocks:** Access to basic market trend information (e.g., "NPCs currently favor high-yield strains"). Ability to brand/label specific genetic products for sale.
   * **Introduces:** Adapting production to meet (NPC) market demands, creating value through unique genetics.
4. **(Optional for Player Marketplace) Advanced Economic Operations:**
   * **Unlocks:** If a player-to-player marketplace is implemented, this could unlock tools for managing online listings, understanding player market supply/demand fluctuations, advanced branding, and potentially even basic "retail" mechanics if players can set up "shops."
   * **Introduces:** Complex player-driven economic interactions.

**Presenting Interdependencies Intuitively:**

Instead of a massive web, we can present interdependencies contextually within the Skill Tree UI.

* **Visual Cues in the UI:**
  + When hovering over a locked node, the UI could highlight any prerequisite nodes in other trees (perhaps with a subtle pulse or connecting line animation).
  + Required nodes could be listed in the tooltip for the locked node (e.g., "Requires: 'Automated Utilities Installation' [Construction] and 'Optimized Nutrient Delivery' [Cultivation]").
* **Logical Grouping/Flow:** Design the layout of nodes within each "Leaf" so that skills that often feed into cross-category advancements are perhaps positioned towards the "edges" of their leaf, visually suggesting connection points.
* **"Pathway" Suggestions:** The game could subtly suggest logical progression pathways based on the player's current goals or recently unlocked major concepts. For example, after unlocking "HVAC Systems" (Environment), a small UI prompt or breadcrumb might suggest looking into "Advanced Facility Construction (Ducting)" (Construction) next if it hasn't been unlocked.

**Example Interdependencies (Refined for Clarity):**

* **Advanced Genetics relies on Science:**
  + *To unlock:* **(Genetics) Genetic Marker Assisted Selection**
  + *Requires:* **(Science) Advanced Analytics & Research Methodology** AND **(Genetics) Understanding Polygenic Traits**.
  + *Rationale:* MAS is a data-heavy scientific process applied to complex genetic understanding.
* **Effective Automated Cultivation needs Construction & Environment:**
  + *To unlock:* **(Cultivation) Atmospheric Optimization for Cultivation (CO2 Management)**
  + *Requires:* **(Environment) Precision Climate Management (for sensors/controllers)** AND **(Construction) Specialized Facility Development (for sealed rooms).**
  + *Rationale:* Effective CO2 management needs precise environmental control and well-built sealed spaces.
* **High-Quality Post-Harvest needs Environmental Control:**
  + *To unlock:* **(Harvest) Curing Science & Application**
  + *Requires:* **(Environment) Atmospheric Refinement (Humidification/Dehumidification)** OR at least access to basic humidity control tools.
  + *Rationale:* Proper curing fundamentally depends on stable humidity and temperature.
* **Business Success builds on Product Quality:**
  + The "Reputation" gained in **(Business) Brand & Reputation Building** is directly influenced by the quality metrics achieved via mastering **Genetics, Cultivation, Environment,** and **Harvest** skills. This is less a hard lock and more a systemic dependency. Better skills elsewhere = better products = better business reputation.

**Skill Tree - Interdependency Map:**

**I. Genetics Leaf** (Core Focus: Breeding, Genetic Understanding & Manipulation)

1. **Seed & Clone Fundamentals**
   * *Unlocks:* Seed Bank UI, basic storage, taking simple cuttings, basic manual germination.
2. **Sexual Reproduction Basics**
   * *Unlocks:* Visual sex ID, basic manual pollen transfer, F1 seed creation.
3. **Phenotype Scouting & Selection**
   * *Unlocks:* Tagging plants with observed visual traits.
4. **Vegetative Propagation Advancement**
   * *Unlocks:* Rooting hormones, basic propagators.
   * *Requires (Implied):* (Cultivation) Growing Media & Containers (for propagators).
5. **Pollen Management & Storage**
   * *Unlocks:* Effective pollen collection, drying, short-medium term storage, basic viability testing.
6. **Trait Stabilization (Backcrossing)**
   * *Unlocks:* Backcrossing techniques, multi-generational pedigree tracking.
   * *Requires:* (Science) Observation & Record Keeping (for effective tracking).
7. **Targeted Reproduction Techniques (Feminization/Autoflower)**
   * *Unlocks:* Methods for feminized seeds and breeding with autoflower trait.
8. **Advanced Propagation (Tissue Culture & Micropropagation)**
   * *Unlocks:* Tissue culture lab setup, sterile multiplication, genetic cleaning.
   * *Requires:* (Science) Manual Environmental & Plant Sampling (for sterile technique understanding - implied microscope use), (Construction) Specialized Facility Development (for a clean lab space, can be a soft req).
9. **Understanding Polygenic Traits**
   * *Unlocks:* Deeper understanding of complex trait inheritance, potentially more advanced (abstracted) predictive tools.
   * *Requires:* (Science) Data Interpretation & Diagnostics (to understand how to even begin analyzing complex outcomes).
10. **(Late Game) Genetic Marker Assisted Selection (MAS - Simplified)**
    * *Unlocks:* High-cost lab analysis for probabilistic trait markers in seedlings.
    * *Requires:* (Science) Advanced Analytics & Research Methodology, (Genetics) Understanding Polygenic Traits.

**II. Cultivation Leaf** (Core Focus: Plant Care, Growing Techniques, Optimization)

1. **Foundational Plant Care (Water & Basic Nutrients)**
   * *Unlocks:* Manual watering, all-in-one NPK liquid fertilizers.
2. **Growing Media & Containers**
   * *Unlocks:* Basic potting soils, fabric/plastic pots, understanding drainage.
3. **Plant Structuring (Pruning & LST)**
   * *Unlocks:* Basic pruning, Low-Stress Training.
4. **Integrated Pest & Disease Management (IPM Fundamentals)**
   * *Unlocks:* Visual scouting, basic organic treatments.
   * *Requires (Soft):* (Science) Manual Environmental & Plant Sampling (using a loupe/basic microscope for pest ID becomes much more effective).
5. **Optimized Nutrient Delivery (Solution Crafting & Basic Hydro/Drip)**
   * *Unlocks:* Mixing multi-part nutrients, basic drip/DWC systems.
   * *Requires:* (Science) Manual Environmental & Plant Sampling (for pH/EC metering), (Construction) Utility Fundamentals (for simple water lines for drip/DWC).
6. **Advanced Plant Shaping (HST & Canopy Management)**
   * *Unlocks:* High-Stress Training, trellis/SCROG nets.
7. **Atmospheric Optimization for Cultivation (VPD & CO2 Management)**
   * *Unlocks:* Deeper VPD understanding, active CO2 supplementation (tanks/regulators).
   * *Requires:* (Environment) Environmental Automation (Sensors & Controllers - Basic) (to effectively monitor and manage CO2 levels and the VPD triad).

**III. Environment Leaf** (Core Focus: Climate Creation & Control)

1. **Core Environmental Parameters (Temp, Humidity, Light Cycle)**
   * *Unlocks:* Awareness of temp/humidity, basic manual meters, grow lights, basic timers.
2. **Air Exchange & Circulation**
   * *Unlocks:* Intake/exhaust fans, oscillating fans.
3. **Climate Control (Heating & Cooling Basics)**
   * *Unlocks:* Simple heaters, basic AC units/fans.
   * *Requires:* (Construction) Basic Infrastructure (Tents & Power Strips) (to power these devices).
4. **Atmospheric Refinement (Humidification & Dehumidification)**
   * *Unlocks:* Basic humidifiers/dehumidifiers.
   * *Requires:* (Construction) Basic Infrastructure (Tents & Power Strips).
5. **Advanced Lighting Solutions**
   * *Unlocks:* LEDs with adjustable intensity & basic spectrum control.
6. **Environmental Automation (Sensors & Controllers - Basic)**
   * *Unlocks:* Basic sensors (temp/humidity) linked to simple on/off controllers.
   * *Requires:* (Science) Manual Environmental & Plant Sampling (understanding what target values to set for controllers).
7. **Precision Climate Management (Integrated HVAC & Advanced Automation)**
   * *Unlocks:* Sophisticated HVAC, multi-sensor arrays, PLCs for integrated environmental management.
   * *Requires:* (Construction) Automated Utilities Installation (Advanced Electrical for power demands), (Construction) Specialized Facility Development (for ducting/sealed rooms if fully optimizing).

**IV. Construction Leaf** (Core Focus: Building & Utility Infrastructure)

1. **Basic Infrastructure (Tents & Power Strips)**
   * *Unlocks:* Setting up pre-fab tents, basic power distribution.
2. **Room Structuring & Layout**
   * *Unlocks:* Building basic interior walls/doors.
3. **Utility Fundamentals (Electrical Circuits & Manual Water Lines)**
   * *Unlocks:* Simple electrical panels/circuits, manual hoses/temporary water lines.
4. **Automated Utilities Installation (Plumbing & Advanced Electrical)**
   * *Unlocks:* Permanent pipes, pumps, reservoirs, complex electrical systems.
5. **Specialized Facility Development (Sealed Rooms & Workflow Optimization)**
   * *Unlocks:* Building air-tight/insulated rooms, designing for efficient workflow.
   * *Requires:* (Environment) Precision Climate Management (this is a common co-requisite, as building a sealed room is often *for* precise climate control).

**V. Harvest Leaf** (Core Focus: Post-Cultivation Processing for Quality)

1. **Harvest Readiness & Techniques**
   * *Unlocks:* Understanding visual harvest cues (loupe use), proper cutting/handling.
   * *Requires (Soft):* (Science) Manual Environmental & Plant Sampling (for effective loupe use).
2. **Controlled Drying Processes**
   * *Unlocks:* Dedicated drying spaces/racks with basic airflow/humidity control.
   * *Requires:* (Environment) Air Exchange & Circulation AND (Environment) Atmospheric Refinement (or at least access to the basic equipment unlocked by them).
3. **Trimming & Preparation**
   * *Unlocks:* Manual hand-trimming techniques.
4. **Curing Science & Application**
   * *Unlocks:* Curing in airtight containers, understanding burping schedules.
   * *Requires:* (Science) Manual Environmental & Plant Sampling (using hygrometers in jars).
5. **Post-Harvest Efficiency (Bulk Processing & Basic Automation)**
   * *Unlocks:* Managing larger harvest volumes, basic trimming aids.
   * *Requires:* (Construction) Room Structuring & Layout (to have adequate space for bulk processing).

**VI. Science Leaf** (Core Focus: Data, Analysis, Research)

1. **Observation & Record Keeping**
   * *Unlocks:* In-game notebook for detailed manual logging.
2. **Manual Environmental & Plant Sampling**
   * *Unlocks:* Handheld meters (pH, EC, temp, humidity, soil moisture), basic microscope.
3. **Data Interpretation & Diagnostics**
   * *Unlocks:* In-game guides for interpreting data, visual plant health diagnostics, simple manual data graphing.
4. **Quantitative Analysis (Basic Lab Testing & Data Integration)**
   * *Unlocks:* Sending samples for off-site lab testing (potency/terpenes), inputting results.
   * *Requires:* (Harvest) Trimming & Preparation (to have a final product to sample).
5. **Advanced Analytics & Research Methodology**
   * *Unlocks:* (Late Game) In-house analytics software, A/B testing tools, basic statistical analysis.
   * *Requires:* (Environment) Environmental Automation (Sensors & Controllers - Basic) (to provide data streams for software), (Construction) Automated Utilities Installation (Advanced Electrical) (to power extensive sensor networks/computers).

**VII. Business Leaf** (Core Focus: Economic Viability & Market Interaction)

1. **Basic Operations Management (Contracts & Simple Finances)**
   * *Unlocks:* NPC contracts, simple income/expense ledger.
2. **Brand & Reputation Building**
   * *Unlocks:* Company naming/logo, basic NPC buyer reputation system.
   * *Systemic Dependency:* Reputation is heavily influenced by product quality derived from **Genetics, Cultivation, Environment, and Harvest** mastery.
3. **Market Awareness & Product Specialization**
   * *Unlocks:* Basic NPC market trend info, branding specific genetic products.
   * *Systemic Dependency:* Effective specialization requires strong **Genetics** and proven quality from **Harvest**.
4. **(Optional for Player Marketplace) Advanced Economic Operations**
   * *Unlocks:* Tools for player-to-player market, advanced branding, etc.
   * *Requires:* (Implied) Consistent high-quality production from all other relevant skill trees to be competitive.