



Q&A - Farmer Usman Nigeria

Ideal Distance Between Parallel Subsoiling Lines

In the PQNK system, subsoiling is not a random act; it is a surgical procedure to diagnose and heal the soil.

- **The PQNK Guideline:** The ideal distance is 2 to 2.5 feet (approx 24 to 30 inches) .
- **The PQNK Reasoning:**
 - Complete Shattering: At this distance, the fracture zone from the tine overlaps with the next line, ensuring the entire field is loosened. This effectively breaks the compacted layer (hard pan).
 - Creating the "Soil Sponge": This allows roots, water, and air to move freely, transforming the land into a deep, porous sponge.
 - Foundation for Beds: This spacing aligns perfectly with the width of our permanent beds.

Land with Gravel and Stones Underneath

This is a critical situation that requires the specific PQNK conversion protocol. The traditional approach of tilling brings stones to the surface, degrades the soil, and causes the stunted growth and moisture stress the farmer is observing.

- **Can we adopt PQNK?** Yes, absolutely. But we must follow the correct conversion steps.

The Correct PQNK Conversion Protocol for Stony Land:

1. **Step 1:** Diagnosis - Check for the Hardpan: The first step is to investigate the soil profile. Dig a pit or use a probe to see the layers.
 - Crucial Rule: Only subsoil if there is a hardpan present between the surface and the layer where the stones start.
 - Why? If we subsoil blindly, the tines can bring the buried stones up to the surface. These surfaced stones will then hinder future planting and bed preparation. If the soil above the stones is already loose, do not subsoil.
2. **Step 2:** The "If Needed" Subsoiling: If a hard pan is confirmed, run the subsoiler just deep enough to break that specific compacted layer. Do not go deeper than necessary to avoid disturbing the stone layer.
3. **Step 3:** Make Permanent Beds: Once the hard pan (if present) is broken, form your permanent raised beds. Do not plough or invert the soil.
4. **Step 4:** Establish a Cover Crop: This is the most important step for healing this land. On the newly formed beds, plant a dense cover crop (such as Jantar, sorghum, millet). Let it grow fully.

5. **Step 5:** The "Roots in the Soil" Rule: When the cover crop is mature, do not pull it out. Cut the plant at ground level, leaving the roots completely undisturbed in the soil.
 - Why? The roots will die and decompose, creating channels for water and air, and adding organic matter deep in the soil where it is needed most and feed the microbes.
6. **Step 6:** Mulch with the Upper Portion: Use the upper part (stalks and leaves) of the cut cover crop as a thick organic mulch layer on top of the beds. This mulch will:
 - Smother any surfaced gravel.
 - Conserve moisture, solving the "lack of moisture" problem.
 - Feed the soil life.
7. **Step 7:** Zero-Tillage Planting: After the mulch is in place, plant your cash crop (like wheat or vegetables) using a no-till planter. This planter places the seed into the soil without disturbing the structure.
8. **Step 8:** Repeat Steps 7 crop after crop

Incorporating Cocoa Trees into the Alley System

The farmer's instinct is correct that Cocoa doesn't fit the standard model. We need to think about the function of shade, not just the tradition.

- The PQNK Solution:
- The thick, permanent mulch layer on the beds (created from cover crops) will keep the soil cool and moist, replacing the need for a tall canopy for soil protection.
- However, the young Cocoa tree itself needs protection from intense sun.
- **The Modified Alley System:**
 1. Plant taller plants in the alley that provide shade to cocoa plants in the afternoon and will provide wind protection and mulch material.
 2. Temporary Nurse Trees: Between the Cocoa trees, plant cover crop plants. Let it provide dappled shade for 1-2 years and mulch to keep soil covered.

Is "Nitrogen Lock up" a Myth or Reality?

The observation of yellow seedlings after mulching with sorghum stalks points to a real biological process.

- The PQNK Explanation: It is a real, but temporary, microbial feeding frenzy.
- The Cause: Dry sorghum stalks are high in Carbon and low in Nitrogen. Soil microbes use available Nitrogen to decompose this material, temporarily taking it away from the seedlings.
- **The PQNK Solution:**
 1. Mix Your Mulch: Combine high-carbon stalks with green, nitrogen-rich material (like leaves).
 2. Use the Cover Crop Cycle: This is the best solution. If you follow the conversion steps above—growing a cover crop, leaving roots in, and using the tops as mulch—the soil biology will already be balanced. The roots left behind

add nitrogen, and the mixed mulch (from the cover crop) provides a balanced diet for the microbes, preventing the yellowing of seedlings.

Your observations are accurate and questions are the foundation of successful farming. By following this step-by-step conversion protocol, stony land can become the most productive and resilient part of the farm.

Applying PQNK without understanding nature's operating system will not deliver abundance, stability, or nutrient density.

*PQNK (pronounced "picnic")—the regenerative & sustainable **Pristine Organic Farming System**—is grounded in **Natural Ecosystem Science**. This science employs perennial biodiversity, protects soil with organic mulch, and avoids practices such as water inundation, tillage disturbance, and leaving soil bare.*

*It is the **process** that matters most. PQNK is a pristine production system designed not merely for yield, but for optimal, balanced output—where quality, sustainability, and ecological harmony emerge from a self-regulated, zero-external-input methodology.*

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