**Table 1** Baseline Soil Health Assessment (Cornell, Ithaca, NY, USA)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Kind** | **Variable** | **Median (n=10)** | **Deviation** | **Descriptor** |
| Biological | Organic Matter (%) | 2.550 | 0.297 | Very Low |
|  | Respiration (mg per day) | 0.175 | 0.037 | Medium |
| Physical | Aggregate Stability (%) | 18.950 | 4.448 | Very Low |
| Chemical | pH | 8.100 | 0.074 | Poor |
|  | Phosphorus (ppm) | 2.250 | 1.038 | Medium |
|  | Potassium (ppm) | 103.800 | 36.324 | Optimal |
|  | Iron (ppm) | 6.050 | 4.374 | Optimal |
|  | Magnesium (ppm) | 463.600 | 24.908 | Optimal |
|  | Manganese (ppm) | 42.100 | 4.893 | Optimal |
|  | Zinc (ppm) | 3.800 | 2.891 | Optimal |
|  | Heavy metals (Pb, Al, As, Cu) |  |  | Safe |

**Table 2** Cover crop mixes

|  |  |  |
| --- | --- | --- |
| **Function** | **Plants** | **Binomial** |
| Weed Suppression | Sorghum-Sudangrass | *Sorghum bicolor x S. bicolor var. sudanese* |
|  | Cowpea/Black-Eyed Pea | *Vigna unguiculata subsp. unguiculata* |
|  | Buckwheat | *Fagopyrum esculentum* |
| Perennial | Hairy Vetch | *Vicia villosa* |
|  | Red Clover | *Trifolium pratense* |
|  | Wheat | *Triticum aestivum* |
| Compaction | Forage Radish | *Raphanus sativus var. longipinnatus* |
|  | Crimson Clover | *Trifolium incarnatum* |
|  | Cereal Ryegrass | *Secale cereale* |
| Null | Existing vegetation (no manipulation) |  |