**Supporting Information**

**Table S1:** Correlations among studied soil physico-chemical parameters and nutrients irrespective of land-uses and soil depths.

| | pH | EC | Sand | Silt | Clay | Bd | WSA | MWD | SOC | Av-N | Av-P | Av-K | Av-Zn | Av-Cu | Av-Fe |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EC** | 0.56** | | | | | | | | | | | | | | |
| **Sand** | 0.43** | 0.54** | | | | | | | | | | | | | |
| **Silt** | -0.51** | -0.51** | -0.71** | | | | | | | | | | | | |
| **Clay** | -0.11 | -0.27** | -0.73** | 0.03 | | | | | | | | | | | |
| **Bd** | 0.39** | 0.09 | 0.36** | -0.30** | -0.22* | | | | | | | | | | |
| **WSA** | -0.41** | -0.34** | -0.78** | 0.58** | 0.54** | -0.42** | | | | | | | | | |
| **MWD** | -0.46** | -0.41** | -0.82** | 0.61** | 0.57** | -0.43** | 0.93** | | | | | | | | |
| **SOC** | -0.37** | -0.05 | -0.39** | 0.42** | 0.14 | -0.70** | 0.62** | 0.58** | | | | | | | |
| **AvN** | -0.37** | -0.07 | -0.25** | 0.30** | 0.06 | -0.49** | 0.43** | 0.53** | 0.66** | | | | | | |
| **AvP** | -0.41** | -0.05 | -0.36** | 0.31** | 0.20* | -0.73** | 0.52** | 0.63** | 0.77** | 0.81** | | | | | |
| **AvK** | -0.24* | -0.10 | -0.42** | 0.22* | 0.38** | -0.63** | 0.52** | 0.66** | 0.63** | 0.69** | 0.89** | | | | |
| **AvZn** | -0.31** | -0.05 | -0.08 | 0.12 | -0.01 | -0.35** | 0.43** | 0.32** | 0.54** | 0.47** | 0.46** | 0.34** | | | |
| **AvCu** | -0.33** | -0.22* | -0.02 | 0.01 | 0.02 | -0.15 | 0.25* | 0.20* | 0.40** | 0.30** | 0.30** | 0.23* | 0.53** | | |
| **AvFe** | -0.30** | -0.12 | -0.08 | 0.12 | -0.01 | -0.32** | 0.30** | 0.29** | 0.39** | 0.47** | 0.46** | 0.29** | 0.59** | 0.57** | |
| **AvMn** | -0.26** | -0.07 | -0.22* | 0.12 | 0.20* | -0.34** | 0.38** | 0.36** | 0.45** | 0.44** | 0.41** | 0.43** | 0.48** | 0.26** | 0.17 |

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

n = 108

EC: Electrical conductivity, Bd: Bulk Density (Mg $m^{-3}$), WSA: Water Stable Aggregates > 25 mm (%), MWD: Mean Weighted Diameter (mm), SOC: Soil Organic Carbon (%), Av-N: Available Nitrogen (kg $ha^{-1}$), Av-P: Available Phosphorus (kg $ha^{-1}$), Av-K: Available Potassium (kg $ha^{-1}$), Av-Zn: Available Zinc (mg kg $soil^{-1}$), Av-Cu: Available Copper (mg kg $soil^{-1}$), Av-Fe: Available Iron (mg kg $soil^{-1}$), Av-Mn: Available Manganese (mg kg $soil^{-1}$).

**Table S2.** Matrix of principle component analysis (PCA) for soils under different land use systems (data pooled for soil depths) obtained with various soil properties viz. sand, silt, clay, bulk density (Bd), water stable aggregates (WSA), mean weight diameter (MWD), soil organic C (SOC), available nitrogen (Av-N), available phosphorus (Av-P), available potassium (Av-K), available zinc (Av-Zn), available-copper (Av-Cu), available iron (Av-Fe) and available manganese (Av-Mn)

| Variable/Variance explained | Principle component-1 (67.3%) | Principle component-2 (20.2%) |
|---|---|---|
| **Sand** | 0.43 | 0.56* |
| **Silt** | 0.59* | 0.31 |
| **Clay** | 0.21 | 0.72* |
| **Bd** | 0.72* | 0.14 |
| **WSA** | 0.68* | 0.27 |
| **MWD** | 0.74** | 0.22 |
| **SOC** | 0.89** | 0.05 |
| **Av-N** | 0.80** | 0.11 |
| **Av-P** | 0.72* | 0.13 |
| **Av-K** | 0.64* | 0.06 |
| **Av-Zn** | 0.80** | 0.04 |
| **Av-Cu** | 0.58* | 0.13 |
| **Av-Fe** | 0.81** | 0.08 |
| **Av-Mn** | 0.80** | 0.02 |

* Significant at $p<0.05$ and **Significant at $p<0.01$

**Supplementary Figures**

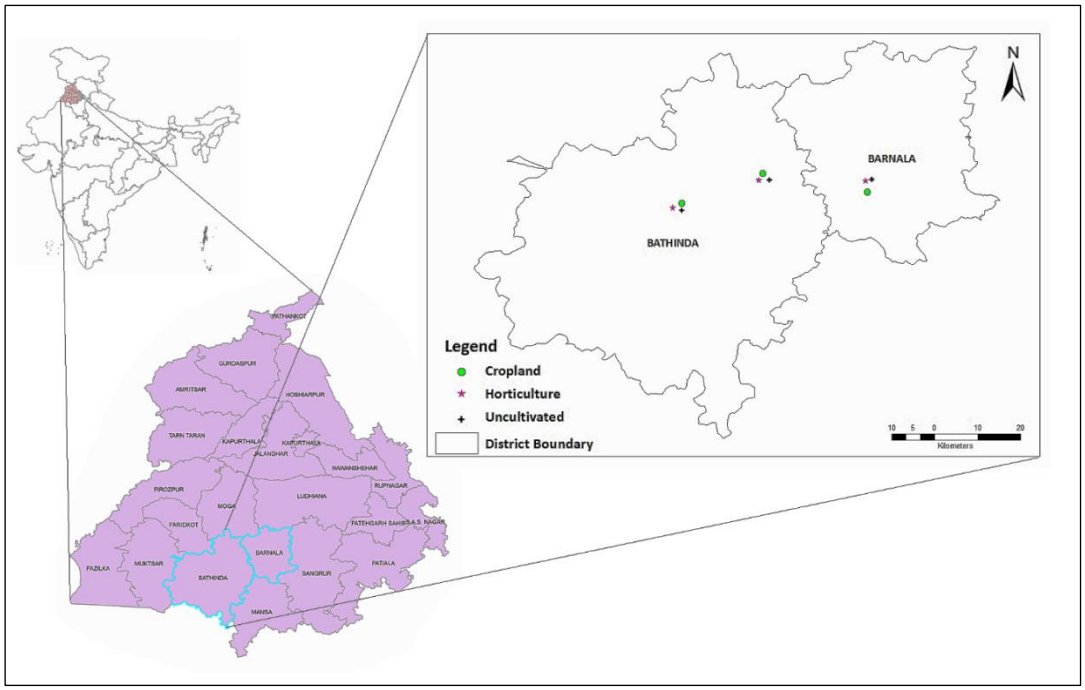


**Figure S1.** Map indicating location of study area (south western Punjab, India) and sites of soil sampling.


**Figure S2.** Pictures of the studied land-uses [a) Wheat field, b) Cotton field, c) Orchards (Kinnow cultivation and d) Uncultivated land) of semi-arid zones of south-western Punjab.

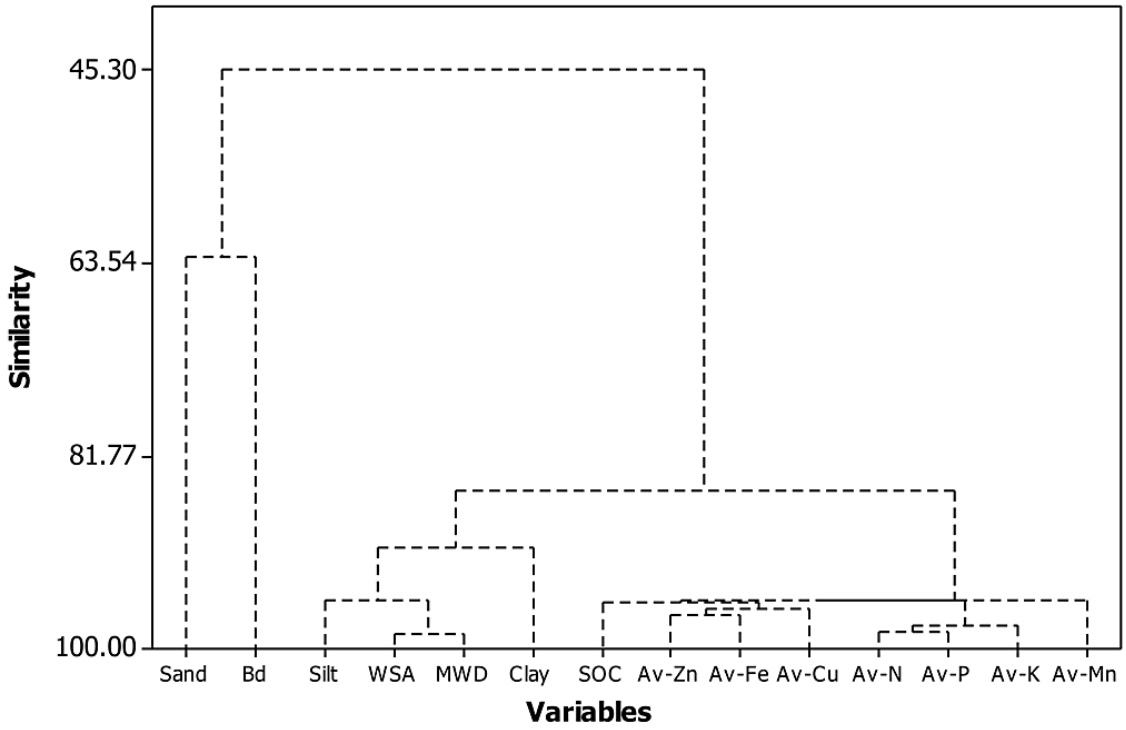


**Figure S3.** Dendrogram depicting single linkage and correlation coefficient distance between different soil variables viz. sand, silt, clay, bulk density (Bd), water stable aggregates (WSA), mean weight diameter (MWD), soil organic C (SOC), available nitrogen (Av-N), available phosphorus (Av-P), available potassium (Av-K), available zinc (Av-Zn), available-copper (Av-Cu), available iron (Av-Fe) and available manganese (Av-Mn).