**Table S1.** **Maize morphological descriptor for the high altitude Andean region of Ecuador.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Descriptor** | **Type** |  | **State / Unit of measure** |
| Shape of uppermost ear | Qualitative |  |  Cylindrical, Cylindrical-conical, Conical, Round |
| Cob color | Qualitative |  | White, Yellow, Greyish orange, Red, Purple |
| Kernel row arrangements | Qualitative |  | Regular, Irregular, Straight, Spiral |
| Kernel shape | Qualitative |  | Shrunken, Indented, Level, Rounded, Pointed, Strongly pointed |
| Kernel color  | Qualitative |  | White, Yellow, Orange, Red, Brown, Purple |
| Kernel type | Qualitative |  | Floury, Semi-floury, Dent, Semi-dent, Semi-flint, Flint, Pop, Sweet |
| Ear length | Quantitative |  | Measure in cm |
| Ear diameter | Quantitative |  | Measure in mm  |
| Cob diameter | Quantitative |  | Measure in mm |
| Number of kernel rows  | Quantitative |  | Count in number |
| Total number of kernels | Quantitative |  | Count in number |
| Kernel length | Quantitative |  | Measure in mm |
| Kernel width  | Quantitative |  | Measure in mm |
| Kernel thickness | Quantitative |  | Measure in mm |

**Table S2.** **Thematic layers used in the ecogeographic characterization.**

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit/category** | **Component\*** |
| Seasonal mean temperature | °C | Bioclimatic |
| Annual mean temperature range | °C | Bioclimatic |
| December minimum temperature | °C | Bioclimatic |
| Seasonal rainfall | mm | Bioclimatic |
| October rainfall | mm | Bioclimatic |
| Elevation | m | Geophysical |
| Slope | degrees | Geophysical |
| Main soil texture | thick, moderately thick, medium, fine | Edaphic |
| Rock depth | superficial, little deep, moderately deep, deep | Edaphic |
| pH | acid, slightly acid, neutral, moderately alkaline | Edaphic |
| Fertility | very low, low, median, high | Edaphic |
| Soil organic matter | very low, low, median, high, very high | Edaphic |

\*Source for bioclimatic: WorldClim, <http://www.worldclim.org>, for geophysical: Shuttle Radar Mission, <http://srtm.csi.cgiar.org>, for edaphic: MAGAP, <http://geoportal.magap.gob.ec/geonetwork/srv/spa/main.home>