**Table S1:** Experimental design.

|  |  |  |  |
| --- | --- | --- | --- |
| YEAR | Environmental conditions | vARIETY | irrigation application |
| 2019 | Irrigation (I) | Pasto (F14) | Yes |
| Marisma (F15) |
| Titicaca (T) |
| Fresh rainfed (FR) | Pasto (F14) | No |
| Marisma (F15) |
| Titicaca (T) |
| Hard rainfed (HR) | Pasto (F14) | No |
| Marisma (F15) |
| Titicaca (T) |
| 2020 | Irrigation (I) | Pasto (F14) | Yes |
| Marisma (F15) |
| Titicaca (T) |
| Fresh rainfed (FR) | Pasto (F14) | No |
| Marisma (F15) |
| Titicaca (T) |
| Hard rainfed (HR) | Pasto (F14) | No |
| Marisma (F15) |
| Titicaca (T) |