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International Quinoa Conference 2016:

Quinoa for Future Food and Nutrition Security in Marginal Environments

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Adaptability of quinoa to adverse climatic and soil conditions of Niger

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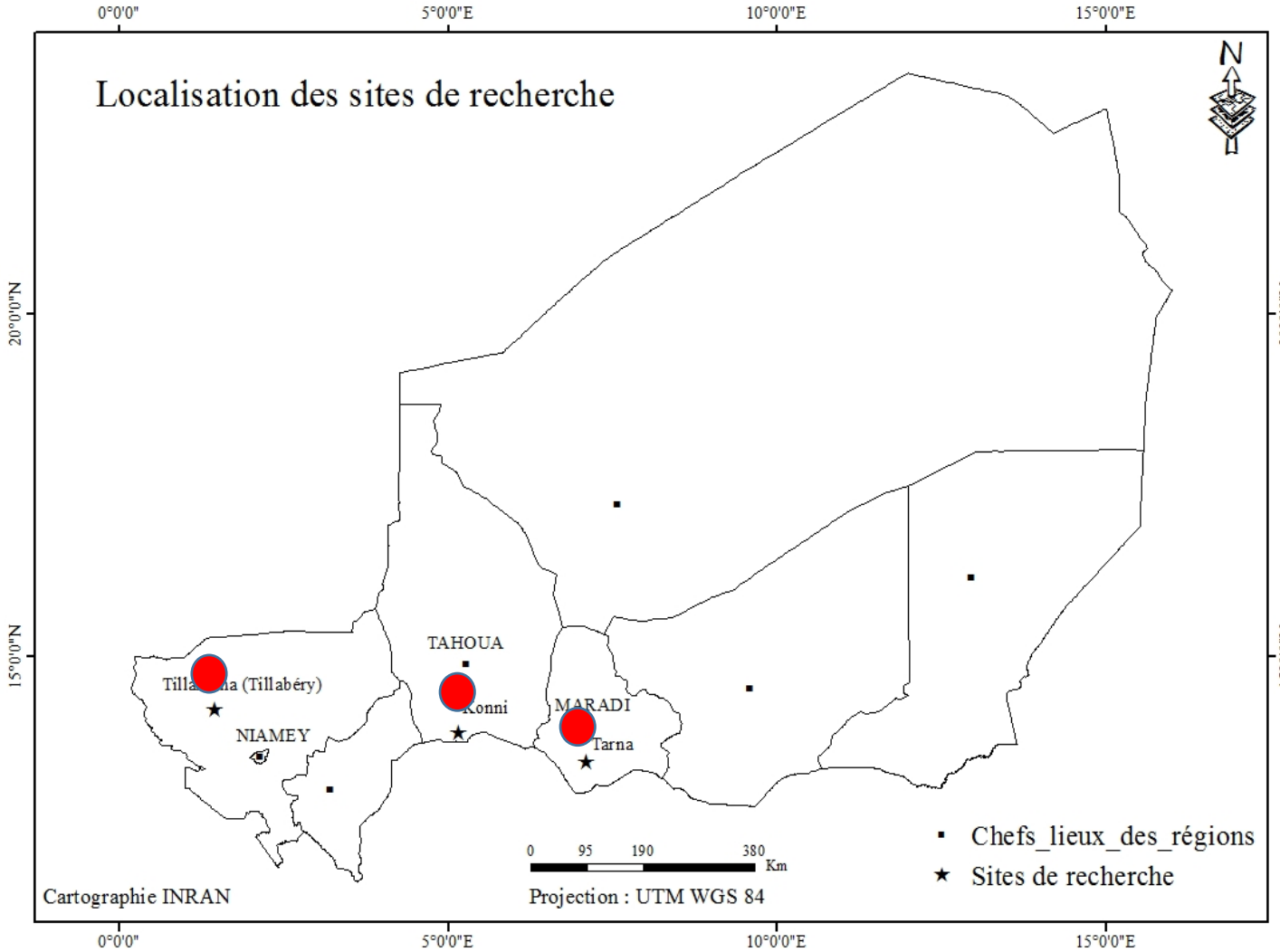
Background/Introduction

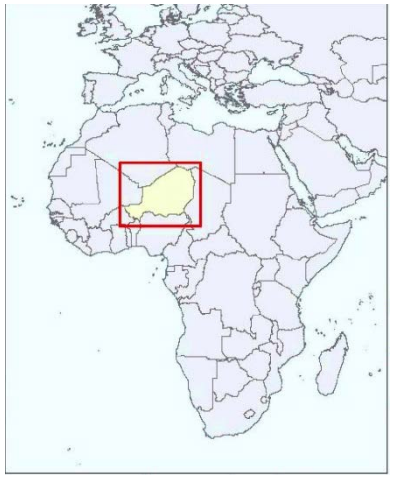
Key challenges are:

- The vulnerability of populations of Niger to recurring shocks limit not only agricultural and livestock production but also economic growth
- Limited access to protein sources and limited production conditions due to insufficient rainfall, reduced availability of inputs and aridity such as Niger
- No-agricultural development and sustainable food insecurity that requires the introduction of high-value crops such as quinoa.
- The lack of knowledge about the nutritional benefits of quinoa and its contribution to the fight against food insecurity

Materials and Methods

Experimental site location





Sites : Konni, Tillabéry and Maradi

Materials and Methods

. Climate and soil types

Sites	**Agro-écological zones**	**Temperature**		**Rainfall**		**Soil types**
		Max	Min.	Max.	Min.	
Konni	Sahelian	42°C	12°C	600 mm	350 mm	Tropical or slightly leached tropical ferruginous soils, associated with poorly developed gravelly soils
Tillabery	Sahelo-saharian	44°C	15°C	350 mm	150 mm	Poorly developed soils, isohumic soils, and hydromorphic soils with real possibilities for irrigated crops
Maradi	Sahélo-soudanian	40°C	10°C	800 mm	600 mm	Hydromorphic soils associated with ferruginous soils

Materials and Methods

Applied treatments

- Treatments: 2 Quinoa varieties (Puno and Titicaca)
- The trial was conducted in a RCBD with four (4) replications.
- Seeding was done in plots of 10 m^2 (2 m x 5 m).
- The distance between to line was 0.5 m and 0.25 m between plants on same the lines

Results

Growth Parameters

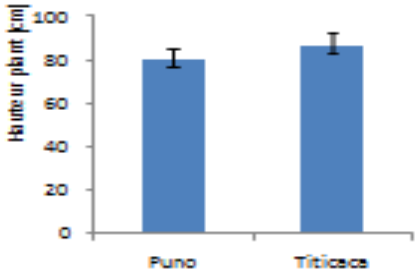
Qualitatives characters of quinoa in Maradi

Varieties	Panicle Color at bloom	Panicle Color at maturity	Panicle size	Panicle density	Dehiscence degree
Puno	Green	Pink	Intermediate	Compact	Strong
Titicaca	Purple	Orange	Amarantiforme	Average	Normal

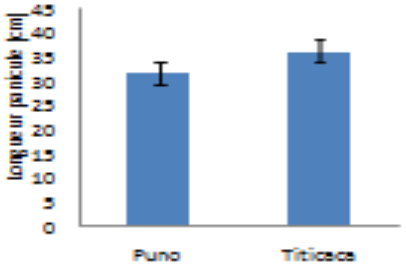
Plants of Puno (left) and Titicaca (right) in Maradi

Growth Parameters

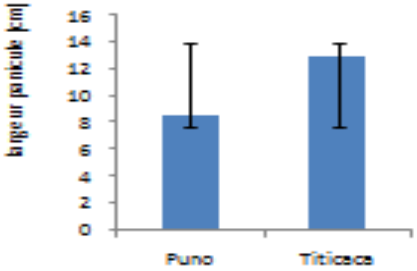
Quantitative parameters



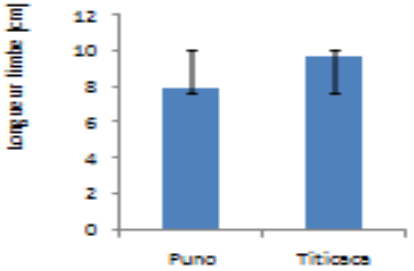
Plant height



Panicle length

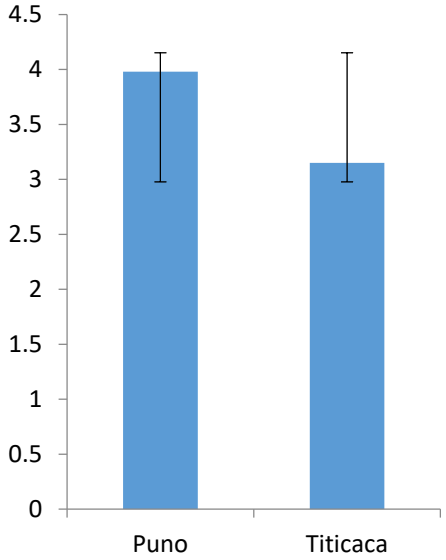


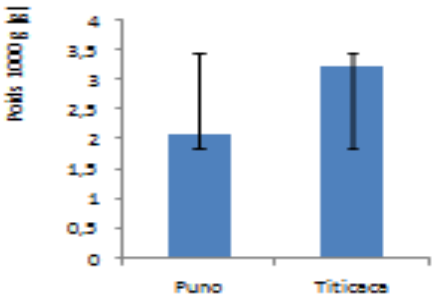
Panicle Width



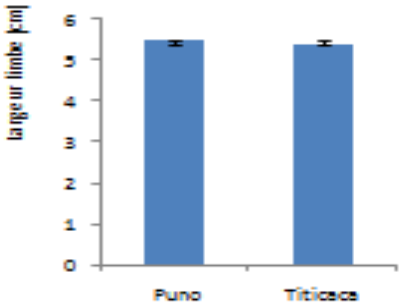
Limbe length

Yield





1000 GR weigth



Limbe width

Conclusions and recommandations

- The quinoa can be growing in Niger
- Limited quantity of genetic material
- The data is collected only in Maradi, no it is to short to conclude the result of Konni and Tillabéry;
- the experimentation will be done this season with more materials
- The quinoa program is young in Niger, so better knowledge of the advantage of this crop by the population is necessary ;

THANK YOU FOR YOUR ATTENTION