UFRGS
UNIVERSIDADE FEDERAL
DO RIO GRANDE DO SUL

UFRGS OAT BREEDING PROGRAM BRAZIL

Luiz Carlos Federizzi

Marcelo Teixeira Pacheco

OATS
UFRGS
Quality
Genetics

Where we are located

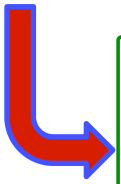
UFRGS Experimental Station
(subtropical humid climate)

PERFORMANCE TRIALS

10 Locals – Cooperative system under the Brazilian Committee for Oat Research

Main breeding objectives

- High grain yield
- Grain yield stability across year and environments
- High grain quality (milling attributes)
- Acceptable resistance to major diseases
  - crown rust
  - stem rust
  - Black spot on leafs and kernels
  - Fusarium
- High initial growth (speed and biomass)
- Acceptable frost tolerance
- Adequate cycle ➔ Brazilian farms cultivate 2 – 3 crops / year



- UFRGS germplasm is insensitive to day length
- no or low vernalization requirement
- fairly early

Crown Rust

With fungicide

Without fungicide

An UFRGS variety – released in 2001
(picture from 2005)

AFRI collection - 2010

A New Zeland Line
(QION)

Pyrenophora chaetomioides

Leaf black spots

Kernel black spots

No-till system

Segregating populations are conducted as head-rows

(2 m long double-rows)

Segregating populations development

- 100 – 120 crosses per year
- Mostly single crosses
- Parents chosen based on grain yield and quality and disease resistance
  - Successful cultivars have a compromise between grain yield and quality and disease resistance
  - At least one of the parental genotypes must have some level of crown rust resistance
- SC ➔ 1000 – 1200 seeds / F_2 population (10 double-rows)
  3WC ➔ ~ 2000 seeds / F_2 population (10 double-rows)
- Modified pedigree method (1 head / selected plant)
- No generation advancing ➔ selection hold every year
- All panicles have grains selected visually for physical grain quality

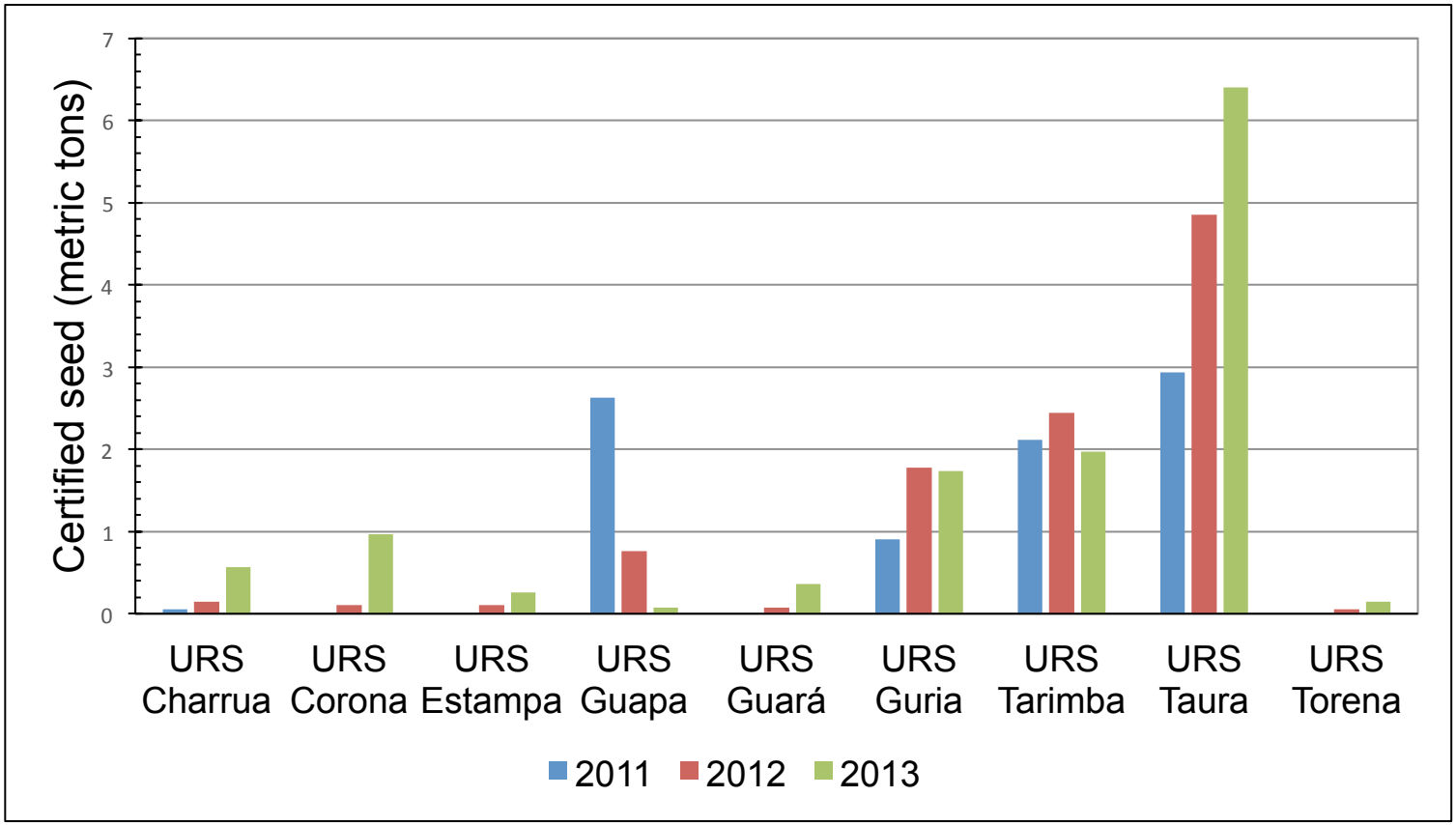
Oat varieties released by UFRGS Breeding Program

- **1974: beginning of the breeding program**

Variety	Year	Variety	Year	Variety	Year
UFRGS 1	1982	UFRGS 12	1987	URS TAURA*	2009
UFRGS 2	1982	UFRGS 14	1993	URS TARIMBA*	2009
UFRGS 3	1982	UFRGS 15	1995	URS GURIA*	2010
UFRGS 4	1985	UFRGS 16	1995	URS CHARRUA*	2010
UFRGS 5	1985	UFRGS 17	1996	URS CORONA*	2010
UFRGS 6	1985	UFRGS 18	1996	URS TORENA*	2010
UFRGS 7	1985	UFRGS 19	1999	URS/FAPA SLAVA*	2010
UFRGS 8	1985	URS 20	2000	URS GUARÁ*	2011
UFRGS 9	1985	URS 21*	2000	URS ESTAMPA*	2011
UFRGS 10	1985	URS 22	2001	URS PENCA	2011
UFRGS 11	1987	URS GUAPA*	2004	URS BRAVA*	2012

* Varieties indicated to cultivation in 2014

Seed licensed by UFRGS Program*



*** Around 50% of the area cultivated with oats for grain might be cultivated with certified seed in Brazil.**

- UFRGS licensed in ~ 12,500 ha for seed production in 2013.
- UFRGS cultivars' certified seed alone would be enough to cultivate at least 250,000 ha.

(official area cultivated with oats (*A. sativa*) was 170,000 ha)