



OAT'S GRAIN-FILLING STAGE: Description and impact on yield

🔍 **Filipe Kalikoski Coelho**, undergraduate student at the Agronomy School (UFRGS).

🔍 **Carla Andréa Delatorre**, professor at the Department of Crop Science, Agronomy School (UFRGS).

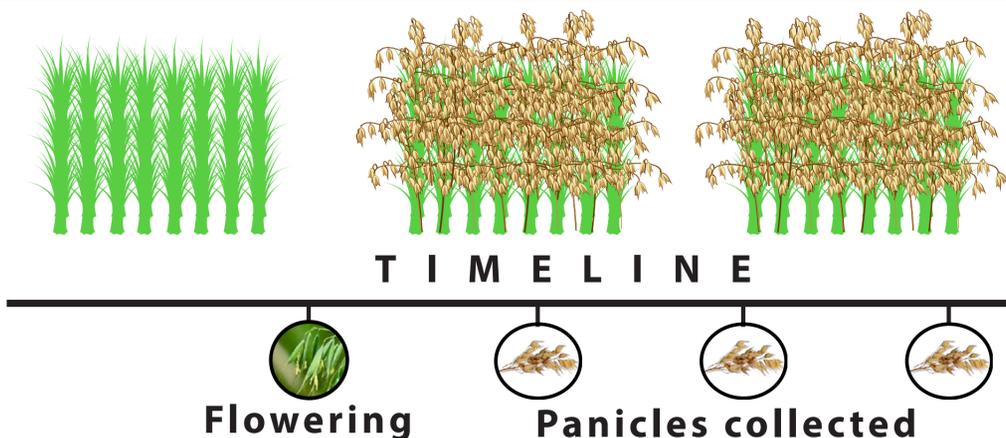
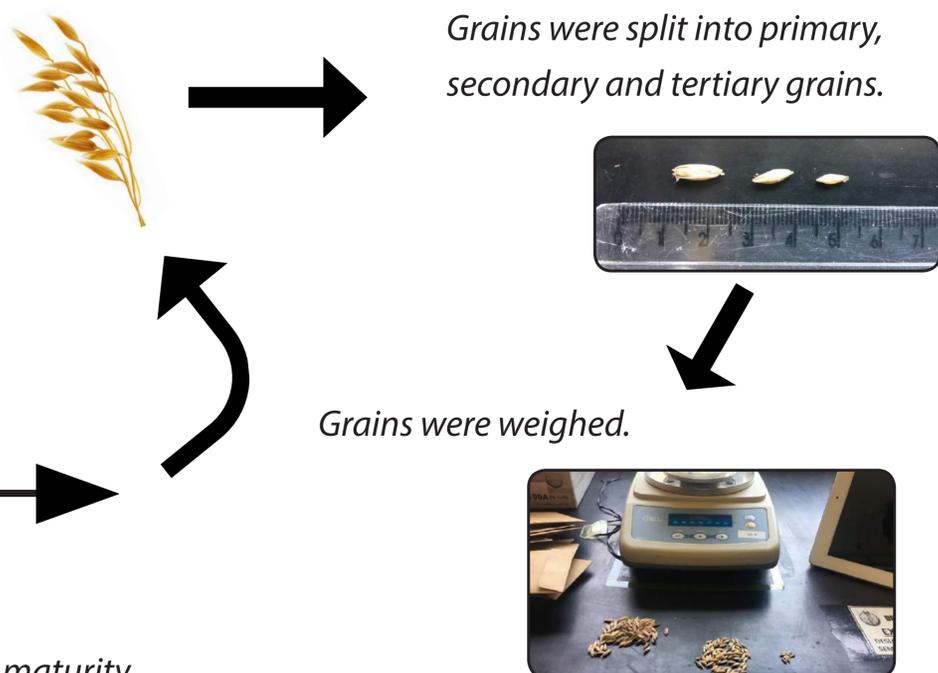
1 Introduction

- Oat (*Avena sativa* L.) is a cereal whose harvested area has shown increases for the past few years in Brazil.
- This species plays a key role in crop rotations under the no-tillage system, due to the fact that it is able to replace wheat during the winter.
- Therefore, improving oat yield is of paramount importance for sustaining crop development in the southern regions of Brazil.
- As a crucial physiological process determining grain weight, the grain-filling stage plays remarkable role in increasing yields. Thus, it is required a better understanding of the process.

2 Objective

- This work aimed to evaluate the grain-filling stage and its relation to grain yield in seven oat genotypes.

3 Materials & Methods



Panicles were periodically collected from flowering until physiological maturity.

4 Results

Table 1. Grain-filling rate (mg.day⁻¹), duration (days) and Yield (Mg.ha⁻¹) of seven oat genotypes.

Genotype	Duration (days)	Grain-filling Rate (mg.day ⁻¹)	Yield (Mg. ha ⁻¹)
URS Taura	38,00 a*	1,075 ab	4.182 a
URS F Flete	37,75 a	0,855 d	2.558 c
URS Altiva	38,50 a	1,150 a	2.898 bc
URS Corona	37,75 a	1,095 a	3.429 abc
UFRGS_146173_1	40,00 a	0,937 cd	2.895 bc
UFRGS_146155_3	40,25 a	1,042 abc	3.955 ab
UFRGS_137117_2	39,25 a	0,955 bcd	3.885 ab
C.V. (%)	5,57	5,5	15,71

*Means followed by same letter are not significantly different according to Tukey test (p <0.05).

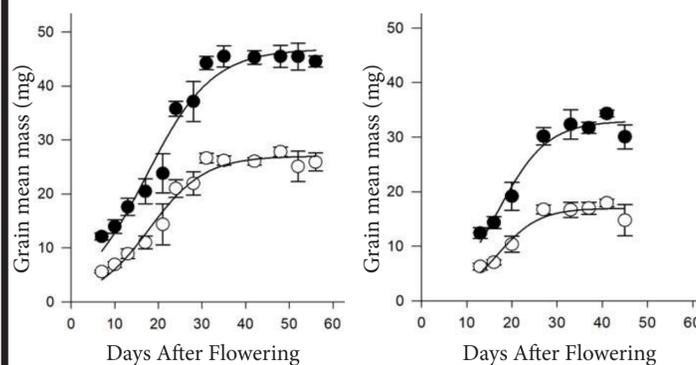


Figure 1. Grain weight during grain-filling stage. Genotypes URS Altiva (left) and URS F Flete (right) Primary grains = black dots. Secondary grains = white dots.

5 Conclusion

- Heavier grains can only be a consequence of higher grain-filling rates for the studied genotypes, given there was no difference observed in grain-filling duration.
- Higher grain-filling rates were associated with higher yields.