Review of: "Technological quality of wheat grains and flour as affected by nitrogen fertilization and weather conditions"

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Potential competing interests: No potential competing interests to declare.

The potential manuscript does not meet the conditions for publication. One year of experimental analysis is insufficient to define the climatic impact on different wheat genotypes. Additionally, the manuscript presents several errors that limit its quality and agricultural purpose.

TITLE:

Technological quality of wheat grains and flour as affected by nitrogen fertilization and weather conditions

1. Technological quality of wheat grains are physicochemical parameters which define the grain quality to flour industry
2. The objective of an experiment is to produce an effect, impact or change.
3. “Nitrogen fertilization and weather conditions” is an inconsequential sentence e.g. What weather conditions?

The title is common, in the same time, it does not resume the manuscript, as well as, it does not show its implication by agronomic purposes

ABSTRACT:

The abstract, as well as, introduction do not show climate target, and the need to study the changes in the technological quality of wheat and flour

INTRODUCTION:

From PDF archive:

Paragraph 1:*White flour is derived from the endosperm storage tissue of the grain and comprises mainly starch (about 75–85%) and protein (about 10%), which are the two major components that determine the flour quality, with the gluten*

proteins determining the viscoelastic properties of dough that underpin many of its uses, including bread making (Min et al., 2017).

1.- The previous sentence is the same as the one written by Min et a., 2017 in the introduction. Citation is a correct practice, but this sentence is close to plagiarism. I would recommend citing publications that directly determine the starch and protein content of grains.

2.- The paragraph, as well as, the manuscript does not show the problem in question, i.e. fertilizer costs, higher temperatures, drought or need to increase wheat protein.

Paragraph 2: For milling and bakery industries and other food companies, the technological quality of wheat grains and flour is mainly based on protein concentration (particularly gluten), despite encompassing other traits such as α-amylase activity (indirectly evaluated by the Hagberg falling number), dough alveography parameters (gluten strength, tenacity, and extensibility), hectoliter weight (HW) and thousand-kernel weight (TKW) (Guarienti et al., 2004; Hellemans et al., 2018; Xue et al., 2019).

1.- Technological quality of wheat grains parameters have not continuity with respect to material and methods, and results sections, i.e. the thousand-kernel weight (TKW) was written as final parameters, but this was the second parameter studied in results.

2.- The paragraph 2 does not register continuity with next paragraph.

Paragraph 3:

1.- The third paragraph is redundant, e.g. *including soil and climate conditions, in addition to being influenced by crop management practices.* **Management practices are induced environmental conditions.**

2. Excessive and futile sentences:

2a) *in addition to being influenced by crop management practices (e.g. fertilization, irrigation, plant growth regulators usage, and control of pests and diseases), harvest process, and drying and storage operations.* **"During the crop development, harvest and postharvest".**

2b) In this context, the supply of essential mineral nutrients by fertilizers is fundamental for the suitable growth and development of wheat plants, favoring the yield and quality of wheat grains and flour.

Paragraph 4:

1.- This paragraph has unnecessary sentences, which it could be summarized, e.g. *Among the nutrients supplied through fertilization, nitrogen (N) is emphasized as an element required in larger amounts by crops, especially by plants of the Poaceae family such as wheat (Bazzo et al., 2016; Souza et al., 2021; Marinho et al., 2022a).*

2.- **Tillers, spikes or spikelets are unfertile?**

3.- Grains with all structures well-developed… **size?**

Paragraph 5:

1.- The paragraph could be summarized

Paragraph 6:

1.- The nitrogen produce starch or it is molecular base to starch chains?

2.- Smaller grains by drought drop the starch accumulation, therefore increasing the protein concentration by lost dilution effect.

3.- wheat plant or wheat crop? Nevertheless, to the best of our knowledge, no scientific work evaluated the combined effects of N fertilization and weather conditions in tropical and subtropical regions on wheat plants concerning the technological quality of the produced grains and flour.

Paragraph 7:

1.- weather conditions in different regions? **The study shows two regions, and Londrina region has two experiments systems, rained and irrigated**

MATERIALS AND METHODS

Commonly, three experimental years are necessary by field research in crop science, two years if data are robust. However, one year of experimental data are insufficient to crop experiment.

1.- *The Shapiro-Wilk's test evaluated the model's assumptions regarding the normality of residuals***The Shapiro-Wilk's evaluated the normality of sample, please could you ratify the sentence?**

2.- *Then, the analysis of variance (ANOVA) was employed.***the manuscript describes many activities, but the purpose of the ANOVA analysis is not defined.**

3.- The manuscript does not describe the meteorological station.

4.- The manuscript does not describe as was calculate the mean temperature

5.- The manuscript does not describe a development scale of wheat which identify physiological stages such as

tillering, anthesis or physiological maturity.

RESULTS

1.- The figure 1 does not describe a development scale of wheat which identify physiological stages such as tillering, anthesis or physiological maturity.

2.- In Londrina, the manuscript would describe the environmental conditions as $L_{rainfed,}$ then the environment modifications (L_{irrig}).

3.- *In contrast, the genotypes Graúna and Sintonia, followed by Mestre, had lower values of HW* **The value sequence is not correct, i.e. Graúna (77.2) and Sintonia (77.1), followed by Mestre (77.4).**

4.- In TKW section omits valuable information such as the lightest genotype in $PG_{rainfed}$ achieved a TKW heavier than Toruk ($L_{rainfed}$) or Graúna (L_{irrig}).

5.- Falling number: Sanhaco PG was only higher that $L_{rainfed,}$

6.- Sequentially, Table 4 would be Table 3.

7.- P/L ratio: Gralha-Azul was higest in $PG_{rainfed}$ and $L_{irrig.}$ In $L_{rainfed}$ highest p/L were achieved by Gralha-Azul and Sossego, and in L_{irrig} only Gralha-Azul

8.- *On the other hand, the lowest values of grain gluten concentration were verified for the genotypes Sinuelo and Quartzo in $L_{rainfed}$ and L_{irrig}, Sossego in $L_{rainfed}$, and Sintonia in L_{irrig}.* **I don't understand the purpose of the sentence.**

9.- Dought gluten: **Why did you use the decimal point 211.5 × 10-4 J ?**

10.- Tables show both Student-Newman-Keuls' and Scott-Knott test, but they did not show the objective of analysis.

DISCUSSION AND CONCLUSIONS

The discussion shows several comparative analyses with respect to similar publications, but omit essential publication which solve both the plant physiology and crop physiology. For example, Porter and Gawith 1999 (Temperatures and the growth and development of wheat: a review) register optimal temperature in each physiological stage the wheat development, Fischer 1985 identify the critical period, and several publications of Calderini, Slafer, Sadras, Miralles and others. Previous publications could help understand the tillerins, critical period, of dilution of N-concentration by effect by drought or higher temperature.

REFERENCES:

Ferreira et al. 2022 is not cited, or bad cited.