# Article information:

Bayesian model averaging to improve the yield prediction in wheat breeding trials - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0168192322004245?via%3Dihub>

# Article summary:

1. This study proposed a novel wheat yield prediction framework based on canopy hyperspectral reflectance (350–2500 nm) and adopted the ensemble Bayesian model averaging (EBMA) method to improve model performance.

2. The Boruta algorithm was used to reduce the dimensionality of hyperspectral data, and four linear ML models and four nonlinear ML models were used to develop the yield prediction models.

3. Results indicate that most EBMA combinations of mixed linear and non-linear models achieved higher prediction accuracy than those integrating a single type of model and the best-performing individual model.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is generally reliable in its presentation of the research conducted, as it provides detailed information about the experimental design, data collection methods, feature selection method, regression technology, and results obtained from the study. The authors also provide references for their claims throughout the article, which adds to its trustworthiness.

However, there are some potential biases in the article that should be noted. For example, while the authors mention that they used four linear ML models and four nonlinear ML models for their analysis, they do not provide any details about why these particular models were chosen or how they compare with other possible options. Additionally, while they discuss how their EBMA approach outperformed individual machine learning models in terms of accuracy, they do not explore any potential drawbacks or risks associated with this approach. Furthermore, while they discuss how their approach could be used to facilitate plant breeding efforts and reduce costs, they do not consider any potential ethical implications or environmental impacts associated with such an approach.

In conclusion, while this article is generally reliable in its presentation of research conducted by the authors, there are some potential biases that should be noted when considering its trustworthiness and reliability.

# Topics for further research:

* Machine learning model comparison
* Ethical implications of plant breeding
* Environmental impacts of plant breeding
* Ensemble machine learning models
* Cost-benefit analysis of plant breeding
* Feature selection methods for machine learning

# Report location:

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