

Multispectral (MS) sensors measure reflectance across specific spectral bands beyond visible light, enabling advanced vegetation indices and crop assessments. Machine learning (ML) is defined as a subset of artificial intelligence (AI) involving algorithms that learn from data to identify patterns and make predictions. The models applied here include supervised learning techniques designed to correlate image-derived features with measured medicinal plants parameters. In this study, UAV multispectral remote sensing technology and ML were utilized for monitoring the yield and quality of medicinal plants, thereby expanding the application scope of UAV remote sensing technology and offering a novel tool for monitoring the growth of medicinal plants.

Major comments:

- (1) In Introduction section, please provide an explanation of the study's challenges and clarify how the suggested approach tackles and improves these challenges. Although my expectations are modest, I hope you can try your best to reorganize the introduction to emphasize the challenges and potential solutions of UAV remote sensing technology in monitoring the yield and quality of medicinal plants. Additionally, please identify the research entry point, the scientific problems this study aims to address, and the research gap it seeks to fill.
- (2) The third paragraph lacks a clear connection to the first two paragraphs. It can be simplified and repositioned as the opening paragraph, with the addition of research gap before introducing the study's objectives.
- (3) Detailed experimental design information for the study is unavailable. Please provide an outline of the similarities and differences in experimental design between the two sites.
- (4) Lines 111–115: This section does not provide a description of the study area.
- (5) The FA can be considered as involving two processes: a prediction process (FA content prediction model) and a classification process (quality discriminant model). What is the distinction between these two processes?
- (6) The process for converting consecutive FA values into classes should be explained. a conversion table should be included in the supplementary material, even if a classification standard is already available.

(7) The discussion and conclusion sections are well-structured and provide adequate interpretation of the results. If the introduction is refined to this level, it will enhance the scientific rigor of the study.

(8) The English must be improved to more clearly express the research. Spoken English and Chinglish are overly prominent. I suggest you have a colleague who is proficient in English and familiar with the subject matter review your manuscript, or contact a professional editing service.

(9) Only 88 samples ($125 * 0.7 = 88$) were used to train the model, which is a sample size too small for an ensemble learning model. Moreover, such ensemble learning models are often challenging to implement in agricultural practice. I encourage the author to carefully reconsider the necessity of using machine learning models, rather than adopting them solely for the purpose of publication. This is, of course, merely a suggestion and does not require modification. My concern is that the author may have inadvertently fallen into a common research trap.

General comments:

- (1) Missing keywords.
- (2) Line58: 'UAV' should be expanded to its full form.
- (3) Line92: "In the previous study, our team used UAV multispectral to construct a detection model of water and fertilizer deficit in the growth period of L. chuanxiong", Please check the English writing.
- (4) Lines 126-127: What is the significance and rationale for selecting these two periods?
- (5) Line179-181: What method is used to separate soil and background using a mask? How is the segmentation performed, and what is its accuracy?
- (6) Line214-216: Why is R2 not used to evaluate the quality of the models for Independent validation (Figure 4 and 5), given that NRMSE and MAPE are statistically consistent in assessing significance?
- (7) Figure 1 should be Sichuan, not Sicuan.