
Prediction of Agriculture Yields Using Machine Learning Algorithms

Proceedings of the 2nd International
Conference on Recent Trends in Machine
Learning, IoT, Smart Cities and Applications
pp 17-26 | Cite as

Conference paper

First Online: 01 January 2022

1

Downloads

Part of the [Lecture Notes in Networks and Systems](#) book series (LNNS, volume 237)

Abstract

In recent years, great efforts have been carried out on the challenging task of predicting different crop yields. Developing exact models for crop yield estimation utilizing Information and Communication Technologies may support farmers and different stakeholders to improve decision making about national food import/export and food security. Most of the crops are selected based on the economic range. In our proposed work also we have consider the economical crops and they provide better prediction compared with the existing classifiers. The proposed ensemble classifier provides an efficient crop yield and crop disease forecasting model. Our proposed work provides knowledge to the farmers about the climatic conditions of the probability of crop disease and the climatic conditions for better crop yield. Even it discovers the crop yield and crop diseases, but does not concentrate on

the solution to solve the productivity issue caused by crop diseases. Further, our future work concentrates on the above issue with different algorithms.

Keywords

Agriculture Crop prediction Regression
Random forest algorithm

This is a preview of subscription content, [log in](#) to check access.

References

1. Brewster C, Roussaki I, Ellis K, Doolin K, Kalatzis N (2017) IoT in agriculture: designing a Europe-wide large-scale pilot. *IEEE Commun Mag* 22(7)
[Google Scholar](https://scholar.google.com/scholar?q=Brewster%20C%20Roussaki%20I%20Ellis%20K%20Doolin%20K%20Kalatzis%20N%20%282017%29%20IoT%20in%20agriculture%20designing%20a%20Europe-wide%20large-scale%20pilot.%20IEEE%20Commun%20Mag%2022%287%29) (<https://scholar.google.com/scholar?q=Brewster%20C%20Roussaki%20I%20Ellis%20K%20Doolin%20K%20Kalatzis%20N%20%282017%29%20IoT%20in%20agriculture%20designing%20a%20Europe-wide%20large-scale%20pilot.%20IEEE%20Commun%20Mag%2022%287%29>)
2. Kumar A, Sarkar S, Pradhan C (2019) Recommendation system for crop identification and pest control technique in agriculture. In: *IEEE international conference on communication and signal processing*, vol 37, pp 0185–0189
[Google Scholar](https://scholar.google.com/scholar?q=Kumar%20A%20Sarkar%20S%20Pradhan%20C%20%282019%29%20Recommendation%20system%20for%20crop%20identification%20and%20pest%20control%20technique%20in%20agriculture.%20In%20IEEE%20international%20conference%20on%20communication%20and%20signal%20processing%2C%20vol%2037%2C%20pp%200185%E2%80%930189) (<https://scholar.google.com/scholar?q=Kumar%20A%20Sarkar%20S%20Pradhan%20C%20%282019%29%20Recommendation%20system%20for%20crop%20identification%20and%20pest%20control%20technique%20in%20agriculture.%20In%20IEEE%20international%20conference%20on%20communication%20and%20signal%20processing%2C%20vol%2037%2C%20pp%200185%E2%80%930189>)
3. Michelson DG, Hamdi M, Abouzar P (2016) RSSI-based distributed self localization for wireless sensor network used in precision agriculture. *IEEE Trans Wireless Commun* 15(10):125–131
[Google Scholar](https://scholar.google.com/scholar?q=Michelson%20DG%20Hamdi%20M%20Abouzar%20P%20%282016%29%20RSSI-) (<https://scholar.google.com/scholar?q=Michelson%20DG%20Hamdi%20M%20Abouzar%20P%20%282016%29%20RSSI->

based%20distributed%20self%20localization%20for%20wireless%20sensor%20network%20used%20in%20precision%20agriculture.%20IEEE%20Trans%20Wireless%20Commun%2015%2810%29%3A125%E2%80%93131)

4. Dutta R, Morshed A, Aryal J, D'Este C, Das, Aruneema (2016) Development of an intelligent environmental knowledge system for sustainable agricultural decision support. Res Gate Environ Model Softw 52:264–272
[Google Scholar \(https://scholar.google.com/scholar?q=Dutta%20R%2C%20Morshed%20A%2C%20Aryal%20J%2C%20D%27Este%20C%2C%20Das%2C%20Aruneema%20%282016%29%20Development%20of%20an%20intelligent%20environmental%20knowledge%20system%20for%20sustainable%20agricultural%20decision%20support.%20Res%20Gate%20Environ%20Model%20Softw%2052%3A264%E2%80%93272\)](https://scholar.google.com/scholar?q=Dutta%20R%2C%20Morshed%20A%2C%20Aryal%20J%2C%20D%27Este%20C%2C%20Das%2C%20Aruneema%20%282016%29%20Development%20of%20an%20intelligent%20environmental%20knowledge%20system%20for%20sustainable%20agricultural%20decision%20support.%20Res%20Gate%20Environ%20Model%20Softw%2052%3A264%E2%80%93272)
5. Tseng F-H, Cho H-H, Wu H-T (2019) Applying big data for intelligent agriculture-based crop selection analysis. IEEE Access 7
[Google Scholar \(https://scholar.google.com/scholar?q=Tseng%20F-H%2C%20Cho%20H-H%2C%20Wu%20H-T%20%282019%29%20Applying%20big%20data%20for%20intelligent%20agriculture-based%20crop%20selection%20analysis.%20IEEE%20Access%207\)](https://scholar.google.com/scholar?q=Tseng%20F-H%2C%20Cho%20H-H%2C%20Wu%20H-T%20%282019%29%20Applying%20big%20data%20for%20intelligent%20agriculture-based%20crop%20selection%20analysis.%20IEEE%20Access%207)
6. Viani F, Bertolli M, Salucci M, Polo A (2017) Lowcost wireless monitoring and decision support for water saving in agriculture. IEEE Sens J 99:1–1
[Google Scholar \(http://scholar.google.com/scholar_lookup?title=Lowcost%20wireless%20monitoring%20and%20decision%20support%20for%20water%20saving%20in%20agriculture&author=F.%20Viani&author=M.%20Bertolli&author=M.%20Salucci&author=A.%20Polo&journal=IEEE%20Sens%20J&volume=99&pages=1-1&publication_year=2017\)](http://scholar.google.com/scholar_lookup?title=Lowcost%20wireless%20monitoring%20and%20decision%20support%20for%20water%20saving%20in%20agriculture&author=F.%20Viani&author=M.%20Bertolli&author=M.%20Salucci&author=A.%20Polo&journal=IEEE%20Sens%20J&volume=99&pages=1-1&publication_year=2017)
7. Narvaez FY, Reina G, Torres M (2017) A survey of ranging and imaging techniques for precision agriculture phenotyping. IEEE/ASME Trans Mechatron 22(6):2428–2439
[Google Scholar \(https://scholar.google.com/scholar?q=Narvaez%20FY%2C%20Reina%20G%2C%20Torres%20M%20%282017%29%20A%20survey%20of%20ranging%20and%20imaging%20techniques%20for%20precision%20agriculture%20phenotyping.%20IEEE%20ASME%20Trans%20Mechatron%2022%286%29%3A2428%E2%80%932439\)](https://scholar.google.com/scholar?q=Narvaez%20FY%2C%20Reina%20G%2C%20Torres%20M%20%282017%29%20A%20survey%20of%20ranging%20and%20imaging%20techniques%20for%20precision%20agriculture%20phenotyping.%20IEEE%20ASME%20Trans%20Mechatron%2022%286%29%3A2428%E2%80%932439)
8. Ravichandran G, Koteeshwari RS (2016) Agricultural crop predictor and advisor using ANN for smartphones. In: IEEE international conference on emerging trends in engineering, technology and science, vol 45, pp 138–145

[Google Scholar](https://scholar.google.com/scholar?q=Ravichandran%20G%2C%20Koteeshwari%20RS%20%282016%29%20Agricultural%20crop%20predictor%20and%20advisor%20using%20ANN%20for%20smartphones.%20In%3A%20IEEE%20international%20conference%20on%20emerging%20trends%20in%20engineering%2C%20technology%20and%20science%2C%20vol%2045%2C%20pp%20138%E2%80%93145) (<https://scholar.google.com/scholar?q=Ravichandran%20G%2C%20Koteeshwari%20RS%20%282016%29%20Agricultural%20crop%20predictor%20and%20advisor%20using%20ANN%20for%20smartphones.%20In%3A%20IEEE%20international%20conference%20on%20emerging%20trends%20in%20engineering%2C%20technology%20and%20science%2C%20vol%2045%2C%20pp%20138%E2%80%93145>)

9. Ali I, Zakarya M, Khan R (2018) Technology-assisted decision support system for efficient water utilization: a real-time testbed for irrigation using wireless sensor networks. *IEEE Access* 6(6):2342–2350

[Google Scholar](http://scholar.google.com/scholar_lookup?title=Technology-assisted%20decision%20support%20system%20for%20efficient%20water%20utilization%3A%20a%20real-time%20testbed%20for%20irrigation%20using%20wireless%20sensor%20networks&author=I.%20Ali&author=M.%20Zakarya&author=R.%20Khan&journal=IEEE%20Access&volume=6&issue=6&pages=2342-2350&publication_year=2018) (http://scholar.google.com/scholar_lookup?title=Technology-assisted%20decision%20support%20system%20for%20efficient%20water%20utilization%3A%20a%20real-time%20testbed%20for%20irrigation%20using%20wireless%20sensor%20networks&author=I.%20Ali&author=M.%20Zakarya&author=R.%20Khan&journal=IEEE%20Access&volume=6&issue=6&pages=2342-2350&publication_year=2018)

Copyright information

© The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd. 2022

About this paper

Cite this paper as:

Gunjan V.K., Kumar S., Ansari M.D., Vijayalata Y. (2022) Prediction of Agriculture Yields Using Machine Learning Algorithms. In: Gunjan V.K., Zurada J.M. (eds) Proceedings of the 2nd International Conference on Recent Trends in Machine Learning, IoT, Smart Cities and Applications. Lecture Notes in Networks and Systems, vol 237. Springer, Singapore. https://doi.org/10.1007/978-981-16-6407-6_2

First Online

01 January 2022

DOI

https://doi.org/10.1007/978-981-16-6407-6_2

Publisher Name

Springer, Singapore

Print ISBN

978-981-16-6406-9

Online ISBN

978-981-16-6407-6

eBook Packages

[Intelligent Technologies and Robotics](#)

[Intelligent Technologies and Robotics \(R0\)](#)

[Reprints and Permissions](#)

SPRINGER NATURE

© 2020 Springer Nature Switzerland AG. Part of [Springer Nature](#).

Not logged in · Not affiliated · 123.201.105.126