

Intelligent Crop Recommendation System using Machine Learning

Dr. M. Chitra.¹, Chidella Asritha², Kurapati Gowthami³

M.S.,M.E., Ph.D, Department of Computer Science and Engineering¹

Students, Department of Computer Science and Engineering^{2,3}

Hindusthan Institute of Technology, Coimbatore, India

kurapatigowthami2002@gmail.com

Abstract: India is one of the leading countries worldwide in terms of farm output. Even after being a leading producer of agricultural products, India still lacks farm productivity. There needs to be an increase in productivity, in order to get more income for the farmers. To increase productivity, farmers should know which crop would suit the specific piece of land. If the right type of crop is cultivated in that piece of land, then automatically, the yield of the crop will increase. Hence, crop recommendation systems can be very beneficial for farmers. Many factors do affect the growth of crops. Temperature, humidity, pH, rainfall, amount of potassium, nitrogen, phosphorous in soil all of these are the factors on which the yield depends. Many farmers have no idea about what crop to be grown in which area that will lead to maximum yield as well as profit. Agriculture plays a vital role in the socioeconomic fabric of India. Failure of farmers to decide on the best-suited crop for the land using traditional and non-scientific methods is a serious issue for a country where approximately 58 percent of the population is involved in farming. Sometimes farmers were failed to choose the right crops based on the soil conditions, sowing season, and geographic allocation. This results in suicide, quitting the agriculture field, moving towards urban areas for livelihood. To overcome this issue, this research work has proposed a system to assist the farmers in crop selection by considering all the factors like sowing season, soil, and geographic allocation. Furthermore, precision agriculture is being implemented with a modern agricultural technology and it is evolving in developing countries that concentrates on site-specific crop management. Hence, we are going to explain how machine learning algorithm can be used to predict the crop and price prediction

Keywords: Productivity, Crop prediction, Factors like soil, season, geographic allocation, Machine learning

REFERENCES

- [1] S. Babu, "A Software Model for Precision Agriculture for Small and Marginal Farmers", IEEE Global Humanitarian Technology Conference: South Asia Satellite, Trivandrum, India, 2013, pp. 352-355.
- [2] Chandu, Abraham. "Pest Infestation Identification in Coconut Trees Using Deep Learning." Journal of Artificial Intelligence 1, no. 01 (2019): 10-18.
- [5] S. R. Rajeswari, Parth Khunteta, Subham Kumar, Amrit Raj Singh, Vaibhav Pandey, "Smart Farming Prediction using Machine Learning", International Journal of Innovative Technology and Exploring Engineering, 2019, Volume-08, Issue-07
- [3] Dimitriadis Savvas and Christos Goumopoulos. "Applying machine learning to extract new knowledge in precision agriculture applications", 2008 Panhellenic Conference on Informatics, IEEE, (2008), pp:100-104.
- [4] Z. Doshi, S. Nadkarni, R. Agrawal, and N. Shahe "AgroConsultant: Intelligent Crop recommendation System Using Machine Learning Algorithms", Fourth International Conference on Computing Communication Control and Automation (ICCUBE), Pune, India, 2018, pp. 1-6, DOI:10.1109/ICCUBE.2018.8697349.
- [5] T. Huang, B. Li, D. Shen, J. Cao, B. Mao, "Analysis of the Grain Loss in Harvest based on Logistic Regression", Elsevier Information Technology and Quantitative Management, vol. 122, 2017, pp. 698-705
- [6] S. Kanaga Subh Raja, R. Rishi, E. Sundaresan, V. Srijit, "Demand based Crop Recommender System for Farmers", IEEE Technological Innovations in ICT for Agriculture and Rural Development, Chennai, India, 2017, pp. 194-199.

- [7] Konstantinos G. Liakos, Patrizia Busato, Dimitrios Moshoun Simon Pearson and Dionysis Bochtis, "Machine Learning in Agriculture: A Review", Article on sensors, 2018, pp 1-29, doi:10.3390/s18082674.
- [8] V. Kumar, V. Dave, R. Bhadauriya, S. Chaudhary, "KrishiMantra Agricultural Recommendation System", ACM Symposium on Computing for Development, Bangalore, India, 2013, pp. 1-2.
- [9] J. Lacasta, F. J. Lopez-Pellicer, B. Espejo-Garcia, J. Nogueras-Iso, F. J. Zarazaga-Soria, "Agriculture Recommendation System for Crop Protection", Computers and Electronic in Agriculture, Elsevier.
- [10] L. Madhusudhan, "Agriculture Role on Indian Economy", Business and Economic Journal, 2015 Marion Olubunmi Adebiyi, Roseline Oluwaseun Ogundokun and Aneoghena Amarachi Abokhai, "Machine Learning-Based Predictive Farmland Optimization and Crop Monitoring System", open-access article distributed Volume 2020, pp 1-12.
- [11] S. Pudumalar, E. Ramanujam, R. H. Rajashree, C. Kavya, T Kiruthika and J. Nisha, "Crop recommendation system for precision agriculture," Eighth International Conference on Advanced Computing (ICoAC), 2017, pp. 32-36, DOI: 10.1109/ICoAC.2017.7951740.
- [12] M. T. Shakoor, K. Rahman, S. N. Rayta and A. Chakrabarty, "Agricultural production output prediction using Supervised Machine Learning techniques", 1st International Conference on Next Generation Computing Applications (NextComp), Mauritius, 2017, pp. 182-187, DOI:10.1109/NEXTCOMP.2017.8016196.
- [13] P. S. Vijayabaskar, R. Sreemathi, E. Keertanaa, "Crop Prediction using Predictive Analytics", IEEE International Conference on Computation of Power, Energy Information and Communication, Melmaruvathur, India, 2017, pp. 370-373.