FINAL DELIVERABLES

Date	17 November 2022
Team ID	PNT2022TMID43579
Project Name	Estimate The Crop Yield Using Data Analytics

EXPERIMENTAL INVESTIGATIONS :

For “ESTIMATE THE CROP YIELD USING DATA ANALYTICS” project ,the dataset named "crop_production.csv" is used.The "crop_production.csv" dataset contains 246092 records. This Dataset contains 7 Attributes. The attributes of the given dataset are:-

- State_Name
- District_Name
- Crop_Year
- Season
- Crop
- Area
- Production

Before the analysis, the data preprocessing procedures such as missing value analysis,smoothing noisy data and data standardization were applied on the crop dataset to produce reliable data.Then the different visualizations are developed using IBM Cognos.The visualization in IBM Cognos automatically analyses crop dataset and dashboard is generated and the dashboard can be customized based on the user requirements.The dashboard is displayed on an Application UI.

PROPOSED SOLUTION :

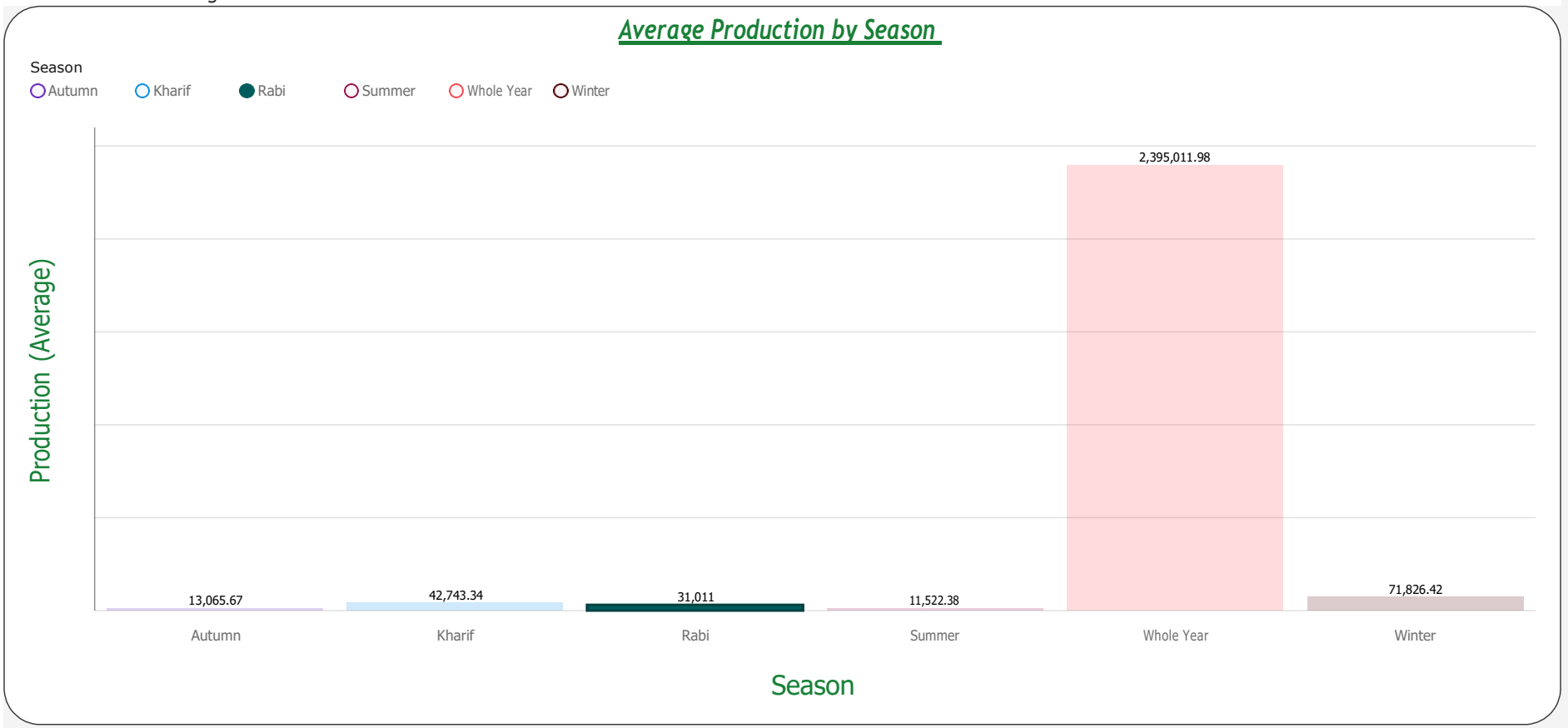
The main problem to be solved using Data analytics is to predict the crop yield which can be extremely useful for farmers in planning for harvest and sale of harvest.The proposed solution is to develop a dashboard using IBM Cognos service.Under IBMCognos ,there are various visualization techniques are available.Finally a dashboard to Estimate The Crop Yield from the given dataset is created.

APPLICATIONS :

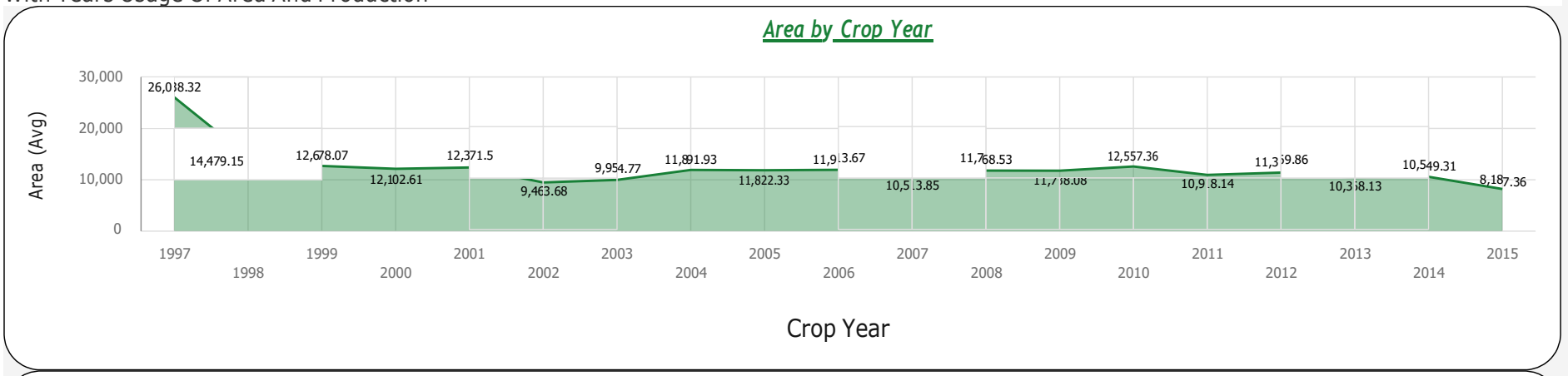
- Crop yield estimation
- Preventing wastage of crop harvest
- Managing crop production
- Enhancing crop yield
- Increasing income of farmers
- Forecasting crop production

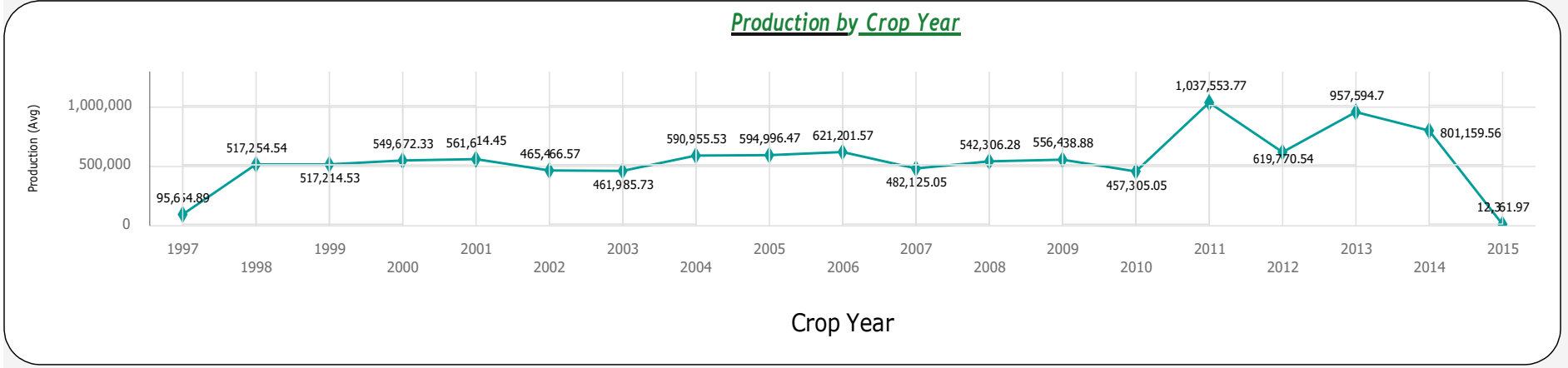
Visuals :

Seasons With Average Productions

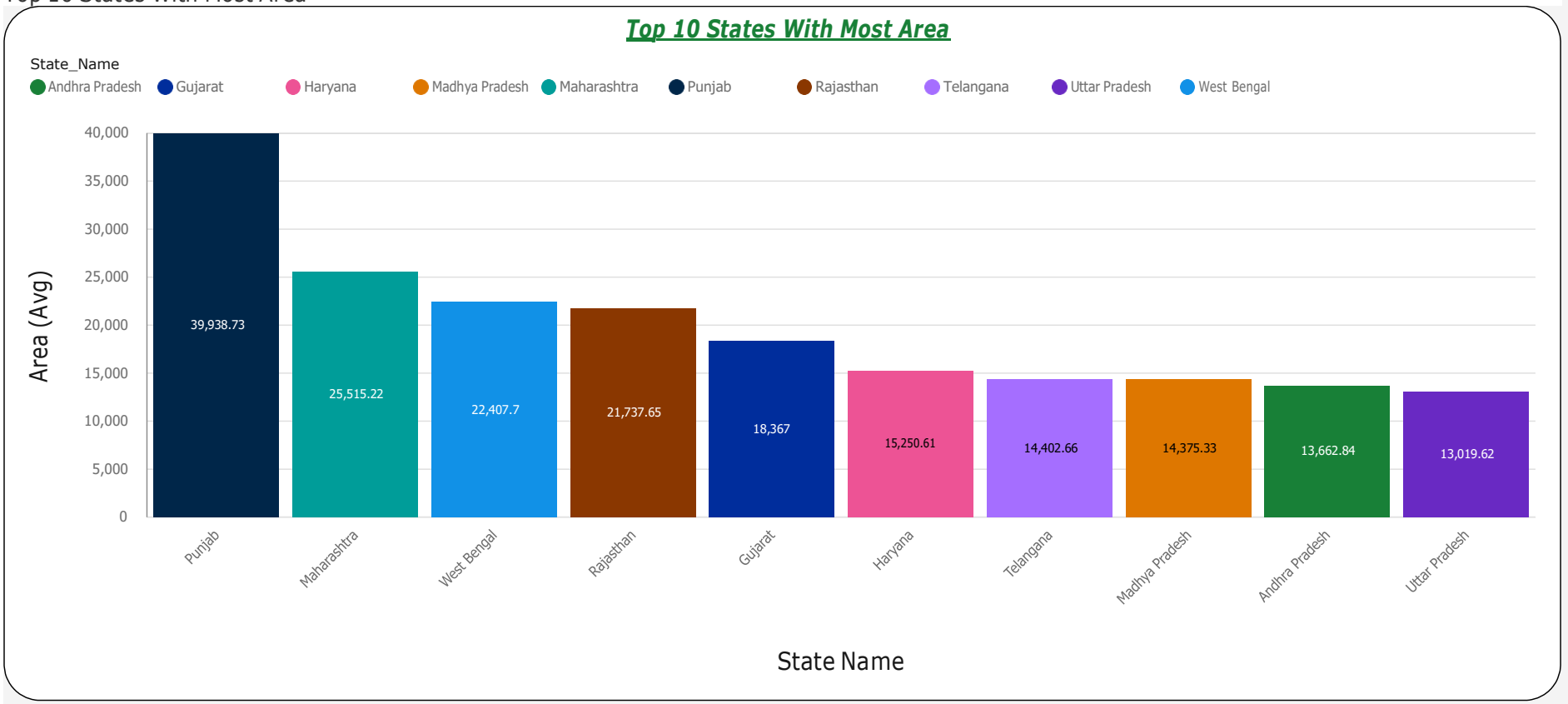


With Years Usage Of Area And Production

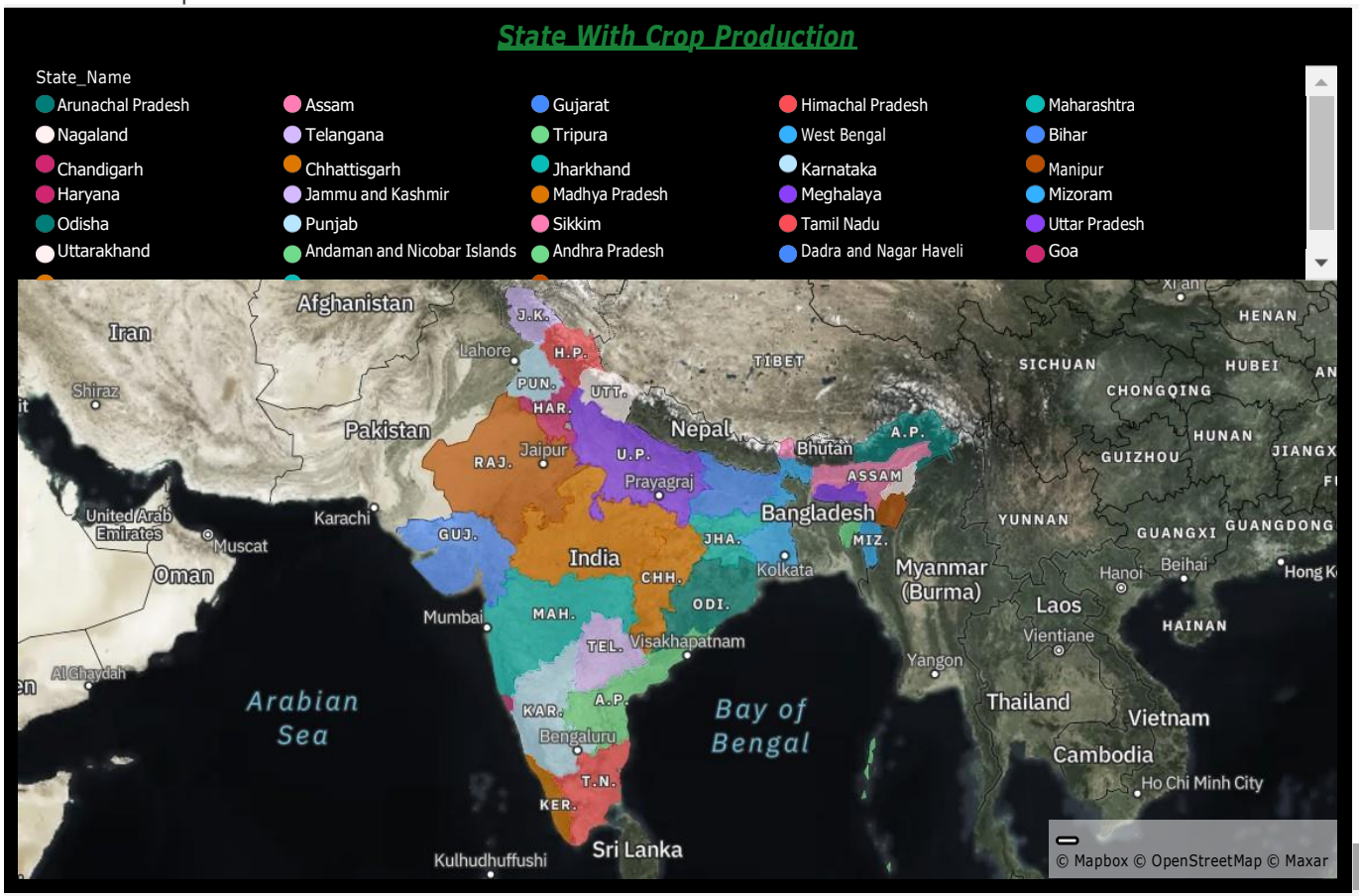




Top 10 States With Most Area



State With Crop Production



Crop

Search

- [ ] Apple
- Arcanut (Processed)
- [ ] Arecanut
- Arhar/Tur
- Ash Gourd
- Atcanut (Raw)
- Bajra
- Banana
- Barley
- Bean
- Beans & Mutter(Vegetable)
- Beet Root
- Ber
- Bhindi

Apply

States With The Crop Production Along With Season

State With The Crop Production

Crop	State_Name
Apple	Tamil Nadu
Arcanut (Processed)	Karnataka
Arecanut	Andaman and Nicobar Islands
	Andhra Pradesh
	Assam
	Goa
	Karnataka
	Kerala
	Meghalaya
	Puducherry
	Tamil Nadu
	West Bengal
	Andaman and Nicobar Islands
	Andhra Pradesh
	Assam

Season With Crop Production

Crop	Season
Arecanut	Kharif
	Rabi
	Whole Year
Arhar/Tur	Rabi
Banana	Whole Year
Black pepper	Rabi
	Whole Year
Cashewnut	Rabi
	Whole Year
Coconut	Whole Year
Dry chillies	Rabi
	Whole Year
Dry ginger	Rabi
	Whole Year
Groundnut	Rabi

Crop

Search

- [ ] Apple
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- [ ] Arecanut
- [ ] Arhar/Tur
- [ ] Ash Gourd
- [ ] Atcanut (Raw)
- [ ] Bajra
- [ ] Banana
- [ ] Barley
- [ ] Bean
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- [ ] Beet Root
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Apply

CONCLUSION :

The proposed "ESTIMATE THE CROP YIELD USING DATA ANALYTICS" is used to predict the crop yield using the attributes such as State_Name,District_Name,Crop_Year,Season,Crop,Area and Production.The proposed model is build with IBM Cognos Watson.As a result of penetration of technology into agricultural field,there is a marginal improvement in the productivity.The innovation have led to new concepts like digital agriculture, smart farming, precision agriculture etc.It has been observed that analysis has been done on crop, hidden pattern discovery using dataset related to season, area, production data.The activities of agriculture field are numerous like weather forecasting, soil quality assessment, seeds selection, crop yield prediction etc. In this survey, the specific activity, crop yield prediction has been surveyed and the major trends have been identified. It can be concluded that the research in the field of agriculture with reference to using IT trends like data analytics is in its infancy.

As the food is the basic need of humans, the requirement of getting the maximum yields using optimal resource will become the necessity in near future as a result of growing population. The survey outcomes indicate the need for improved techniques in crop yield analytics. There exists a lot of research scope in this research area.

FUTURE SCOPE :

The dashboard creation,visualization have taken lots of procedures and steps.The aim of the future work is to analyse the target attribute by reducing the number of procedures and steps.To improve the accuracy of the analysis algorithm selection procedure need to be optimised.

BIBILIOGRAPHY :

[1] D Ramesh, B Vishnu Vardhan. Data Mining Techniques and Applications to Agricultural Yield Data. *International Journal of Advanced Research in Computer and Communication Engineering.* 2013; 2(9).

[2] Swarupa Rani. The Impact of Data Analytics in Crop Management based on Weather Conditions. International Journal of Engineering Technology Science and Research. 2017; 4(5):299-308.

[3] F K Van Evert, S Fountas, D Jakovetic, V Crnojevic, I Travlos, C Kempenaar. Big Data for weed control and crop protection. John Wiley & Sons Ltd on behalf of European Weed Research Society, 2017: 218–233.

[4] Wu Fan, Chen Chong, Guo Xiaoling, Yu Hua. Prediction of crop yield using Big Data. 8th International Symposium on Computational Intelligence and Design.2015.

[5] Dhivya B H, Manjula R, Siva Bharathi S, Madhumathi R. A Survey on Crop Yield Prediction based on Agricultural Data, International Journal of Innovative Research in Science, Engineering and Technology. 2017; 6(3):4177-4182.

[6] R. Sujatha, P.Isakki Devi. A Study on Crop Yield Forecasting Using Classification Techniques, IEEE, 2016.

[7] V. Sellam and E. Poovammal. Prediction of Crop Yield using Regression Analysis, Indian Journal of Science and Technology, 2016; 9(38).

[8] Patricio Grassinia, Lenny G.J. van Bussel, Justin Van Warta, Joost Wolf, Lieven Claessens, d, Haishun Yanga, Hendrik Boogaarde, Hugo de Groote, Martin K. van Ittersumb, Kenneth G. Cassman. How good is good enough? Data requirements for reliable crop yield simulations and yield-gap analysis. Field Crops Research. 2015; 49–63.

[9] David B. Lobell, The use of satellite data for crop yield gap analysis, Field Crops Research-143, 2013; 56–64.

[10] Martin K. van Ittersuma, Kenneth G. Cassmanb, Patricio Grassinib, Joost Wolfa, Pablo Tittonell, Zvi Hochmand. Yield gap analysis with local to global relevance-A review. Field Crops Research – 143, 2013; 4–17