

# Project Report

## 1 INTRODUCTION

**1.1 Overview:** The agriculture sector in India plays a crucial role in the country's economy, providing employment and sustenance to a significant portion of the population. Here with the the growing population, there is a need to analyze the current state of agriculture and make strategic decisions to ensure sustainable agricultural practices, food security, and livelihood opportunities for the population.

**1.2 Purpose:** This project can address various challenges faced by the agricultural sector and contribute to the overall development and well-being of the population. Some of the achievements that can be realized through such an initiative are Food Security, Income Generation, Rural Employment, Sustainable Practices, Technology Adoption, etc.

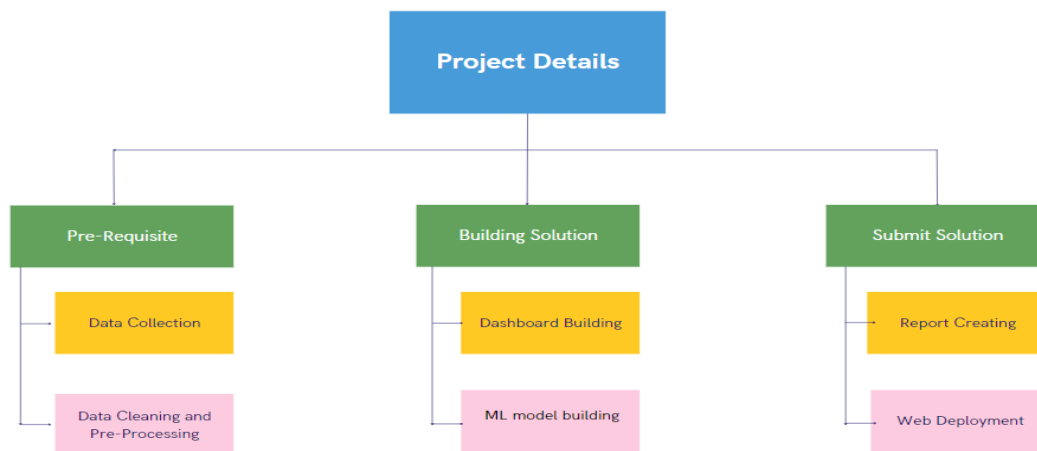
## 2 LITERATURE SURVEY

**2.1 Existing problem:** Water Scarcity, Dependence on Monsoon, Low Yield and Soil Degradation

**2.2 Proposed solution:** Identifying the low yield regions and improving the yield by introducing new technology, irrigation techniques, fertilizers and pesticides.

## 3 THEORITICAL ANALYSIS

**3.1 Block diagram:**



**3.2 Hardware / Software designing:** Technologies used for the projects are:

Jupyter Notebook - Machine Learning model building

IBM Cognos - Dashboard creation

VS Code (HTML and Flask) - Web Deployment

GitHub - Project Submission

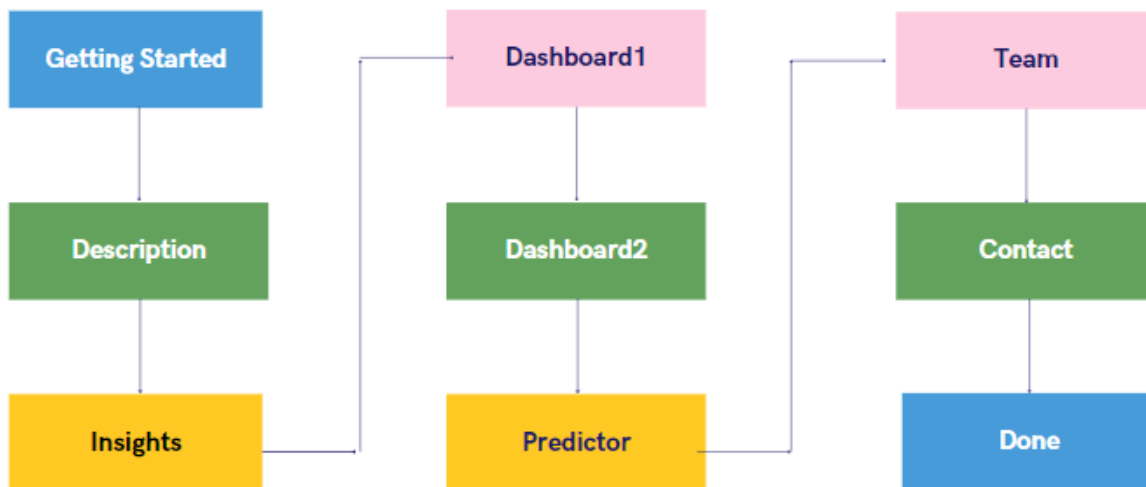
## 4 EXPERIMENTAL INVESTIGATIONS

Area under Agriculture has increased but yield isn't increasing much which lead to low production.

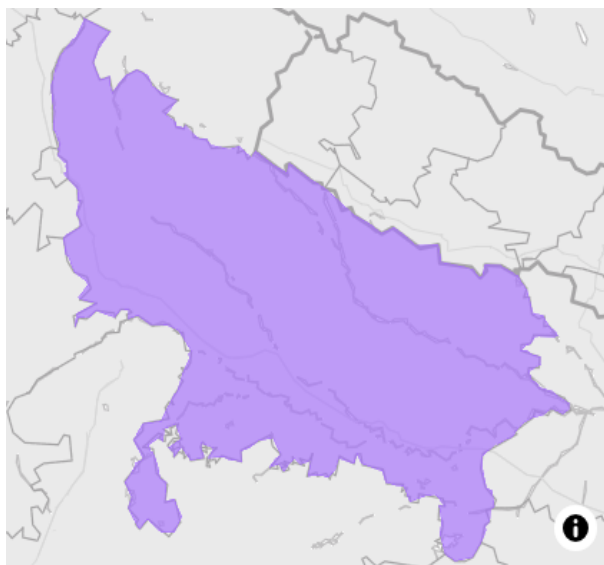
Yield in states like Tamil Nadu and Kerela decreased drastically.

## 5 FLOWCHART

Diagram showing the control flow of the solution



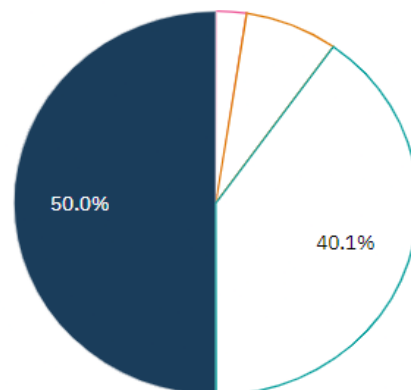
## 6 RESULT



State Uttar Pradesh has the highest Area

Area by Season

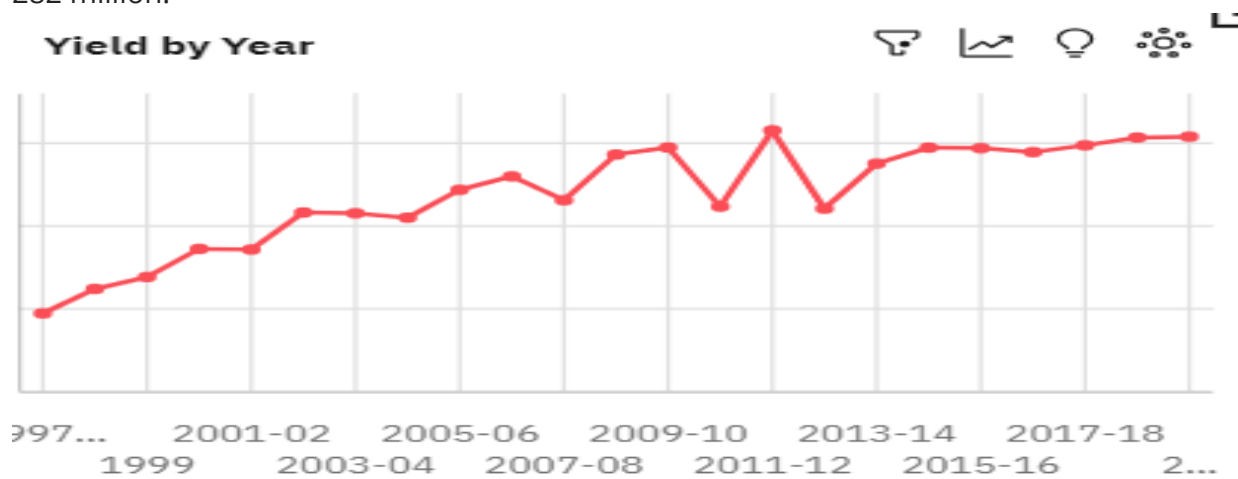
Season  
● Zaid ● Whole Year ● Rabi  
● Kharif



Season Whole Year has the highest

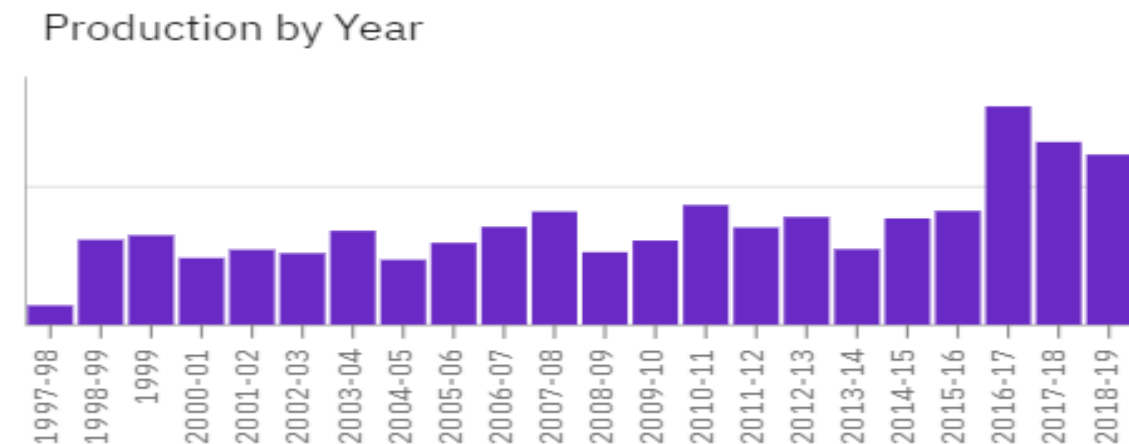
at nearly 543 million, out of which Season Rabi contributed the most at almost 282 million.

Total Production but is ranked #3 in Total Area.



Yield has strong upward trend but Yield for State Dadra and Nagar Haveli has moderate downward trend for this time period.

Based on the current forecasting, Yield may reach 97.05 by Year +5.



Across all years, the sum of Production is over 79 million.

Production ranges from nearly 2.4 million, in 1998-99, to almost 5.4 million, in 2018-19.

## 7 ADVANTAGES & DISADVANTAGES

### 7.1 Advantages:

- 7.1.1 Forecast production for future.
- 7.1.2 District-wise Analysis
- 7.1.3 Crop Type Segmentation
- 7.1.4 Production and Yield trends

### 7.2 Disadvantages:

### 7.2.1 Model Accuracy upto 90 percent only

## 8 APPLICATIONS

8.1 Crop Planning and Selection

8.2 Resource Management

8.3 Supply Chain Optimization

8.4 Sustainable Agriculture

8.5 Government Policies Implementation Area

## 9 CONCLUSION

Decline in the yield is due to the lack of awareness about optimum and advance techniques used for agriculture practices to improve production.

## 10 FUTURE SCOPE

Irrigation and Soil Composition data can be merged with the analysis to know the in-depth reason for decline in yield.

## 11 BIBLIOGRAPHY

Geeks for Geeks() : For flask application Building

BootstrapSave() : For webpage template

## APPENDIX

### A. Source Code

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <meta content="width=device-width, initial-scale=1.0" name="viewport">

  <title>AgroAnalyze|Home</title>
  <meta content="" name="description">
  <meta content="" name="keywords">
  D:/IBM EDUNET/PROJECT AGRICULTURE ANALYSIS/Website/static/
  <!-- Google Fonts -->
  <link rel="preconnect" href="https://fonts.googleapis.com">
  <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
  <link
href="https://fonts.googleapis.com/css2?family=Open+Sans:ital,wght@0,300;0,400;0,500;0,600;0,700;1,300;1,400;1,600;1,700&family=Montserrat:ital,wght@0,300;0,400;0,500;0,600;0,700;1,300;1,400;1,500;1,600;1,700&family=Raleway:ital,wght@0,300;0,400;0,500;0,600;0,700;1,300;1,400;1,500;1,600;1,700&display=swap" rel="stylesheet">
  <!-- Vendor CSS Files -->
  <link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
  <link href="assets/vendor/bootstrap-icons/bootstrap-icons.css" rel="stylesheet">
  <link href="assets/vendor/aos/aos.css" rel="stylesheet">
```

```

<link href="assets/vendor/glightbox/css/glightbox.min.css" rel="stylesheet">
<link href="assets/vendor/swiper/swiper-bundle.min.css" rel="stylesheet">

<!-- Template Main CSS File -->
<link href="assets/css/main.css" rel="stylesheet">
</head>
<body>
  <!-- ===== Header ===== -->
  <section id="topbar" class="topbar d-flex align-items-center">
    <div class="container d-flex justify-content-center justify-content-md-between">
      <div class="contact-info d-flex align-items-center">
        <i class="bi bi-envelope d-flex align-items-center"><a href="mailto:ny683500@gmail.com">ny683500@gmail.com</a></i>
        <i class="bi bi-phone d-flex align-items-center ms-4"><span>+91 9911891921</span></i>
      </div>
    </div>
  </section><!-- End Top Bar -->
  <header id="header" class="header d-flex align-items-center">
    <div class="container-fluid container-xl d-flex align-items-center justify-content-between">
      <a href="index.html" class="logo d-flex align-items-center">
        <!-- Uncomment the line below if you also wish to use an image logo -->
        <!--  -->
        <h1>AgroAnalyze<span></span></h1>
      </a>
      <nav id="navbar" class="navbar">
        <ul>
          <li><a href="#hero">Home</a></li>
          <li><a href="#about">Description</a></li>
          <li><a href="#services">Dashboard</a></li>
          <li><a href="#team">Team</a></li>
          <li><a href="#contact">Contact</a></li>
        </ul>
      </nav><!-- .navbar -->
      <i class="mobile-nav-toggle mobile-nav-show bi bi-list"></i>
      <i class="mobile-nav-toggle mobile-nav-hide d-none bi bi-x"></i>
    </div>
  </header><!-- End Header -->
  <!-- End Header -->
  <!-- ===== Hero Section ===== -->
  <section id="hero" class="hero">
    <div class="container position-relative">
      <div class="row gy-5" data-aos="fade-in">
        <div class="col-lg-6 order-2 order-lg-1 d-flex flex-column justify-content-center text-center text-lg-start">
          <h2>Welcome to <span>Data Analysis Project</span></h2>
          <p>Analysing Agriculture in INDIA and making strageic decisons based on it according to population</p>
          <div class="d-flex justify-content-center justify-content-lg-start">
            <a href="#about" class="btn-get-started">Get Started</a>
          </div>
        </div>
        <div class="col-lg-6 order-1 order-lg-2">
          
        </div>
      </div>
    </div>
  </section>
  <!-- End Hero Section -->
  <main id="main">

```

```

<!-- ===== About Us Section ===== -->
<section id="about" class="about">
  <div class="container" data-aos="fade-up">
    <div class="section-header">
      <h2>Description</h2>
      <p>The agriculture sector in India plays a crucial role in the country's economy, providing employment and sustenance to a significant portion of the population. Here with the the growing population, there is a need to analyze the current state of agriculture and make strategic decisions to ensure sustainable agricultural practices, food security, and livelihood opportunities for the population.</p>
    </div>
    <div class="row gy-4">
      <div class="col-lg-6">
        <h3>Insights</h3>
        
        <p>State Uttar Pradesh has the highest Area at nearly 543 million, out of which Season Rabi contributed the most at almost 282 million.</p>
        <hr>
        
        <p>Yield has strong upward trend but Yield for State Dadra and Nagar Haveli has moderate downward trend for this time period. <br>Based on the current forecasting, Yield may reach 97.05 by Year +5.</p>
      </div>
      <div class="col-lg-6">
        <div class="content ps-0 ps-lg-5">
          <p>
            ,
          </p>
          <br>
          <br>
          <br>
          <p>Across all years, the sum of Production is over 79 million. <br>Production ranges from nearly 2.4 million, in 1998-99, to almost 5.4 million, in 2018-19.</p>
        </div>
        <div class="position-relative mt-4">
          
          <br><br><br><br><br><br><br><br><br><br><br><br><br>
          <p>Season Whole Year has the highest Total Production but is ranked #3 in Total Area.</p>
          
        </div>
      </div>
    </div>
  </div>
</section><!-- End About Us Section -->
<!-- ===== Our Services Section ===== -->
<section id="services" class="services sections-bg">
  <div class="container" data-aos="fade-up">
    <div class="section-header">
      <h2>Dashboard</h2>
      <p>Created using IBM Cognos</p>
      <p></p>
    </div>
    <div class="row gy-4" data-aos="fade-up" data-aos-delay="100">
      <iframe
src="https://ap1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.public_folders%2FHACKATHON%2FagroDashboa

```

rd2&amp;closeWindowOnLastView=true&amp;ui\_appbar=false&amp;ui\_navbar=false&amp;shareMode=embedded&amp;action=view&amp;mode=dashboard&amp;subView=model0000018a303402b6\_0000000a" width="1920" height="900" frameborder="0" gesture="media" allow="encrypted-media" allowfullscreen=""></iframe> </div>

```
</div>
</section><!-- End Our Services Section -->
<!-- ===== Our Team Section ===== -->
<section id="team" class="team">
  <div class="container" data-aos="fade-up">

    <div class="section-header">
      <h2>Our Team</h2>
      <p>Solo Project</p>
    </div>

    <div class="row gy-4">
      <div class="col-xl-4 col-md-4 d-flex" data-aos="fade-up" data-aos-delay="100">
        <div class="member">
          

        </div>
      </div><!-- End Team Member -->
      <div class="col-xl-4 col-md-4 d-flex" data-aos="fade-up" data-aos-delay="100">
        <div class="member">
          <br><br><br>
          <h1>Nitin Yadav</h1>
          <hr>
          <span><h4>Data Scientist</h4></span>
          <br>
          <div class="social">
            <div>
              <a href="https://www.instagram.com/mr.kumarcool/"><i class="bi bi-instagram"></i></a>
            </div>
            <div>
              <a href="https://www.linkedin.com/in/mrkumarcool"><i class="bi bi-linkedin"></i></a>
            </div>
          </div>
        </div>
      </div><!-- End Team Member -->
    </div>
  </div>
</section><!-- End Our Team Section -->
<!-- ===== Contact Section ===== -->
<section id="contact" class="contact">
  <div class="container" data-aos="fade-up">

    <div class="section-header">
      <h2>Contact</h2>
    </div>

    <div class="row gx-lg-0 gy-4">

      <div class="col-lg-12">

        <div class="info-container d-flex flex-column align-items-center justify-content-center">
          <div class="info-item d-flex">
            <i class="bi bi-geo-alt flex-shrink-0"></i>
```

```

        <div>
            <h4>Location:</h4>
            <p>New Delhi, India</p>
        </div>
    </div><!-- End Info Item -->

    <div class="info-item d-flex">
        <i class="bi bi-envelope flex-shrink-0"></i>
        <div>
            <h4>Email:</h4>
            <p>ny683500@gmail.com</p>
        </div>
    </div><!-- End Info Item -->

    <div class="info-item d-flex">
        <i class="bi bi-phone flex-shrink-0"></i>
        <div>
            <h4>Call:</h4>
            <p>+91 9911891921</p>
        </div>
    </div><!-- End Info Item -->
</div>
</div>
</div>
</div>
</section><!-- End Contact Section -->

</main><!-- End #main -->
<!-- ===== Footer ===== -->
<footer id="footer" class="footer">

    <div class="container">
        <div class="row gy-4">
            <div class="col-lg-5 col-md-12 footer-info">
                <a href="index.html" class="logo d-flex align-items-center">
                    <span>AgroAnalyze</span>
                </a>
                <p>Analysing Agriculture in INDIA and making strageic decisons based on it according to population.</p>
                <div class="social-links d-flex mt-4">
                    <a href="https://www.instagram.com/mr.kumarcool/" class="instagram"><i class="bi bi-instagram"></i></a>
                    <a href="https://www.linkedin.com/in/mrkumarcool" class="linkedin"><i class="bi bi-linkedin"></i></a>
                </div>
            </div>

            <div class="col-lg-2 col-6 footer-links">
                <h4>Useful Links</h4>
                <ul>
                    <li><a href="#hero">Home</a></li>
                    <li><a href="#about">About us</a></li>
                    <li><a href="#contact">Contact</a></li>
                </ul>
            </div>

            <div class="col-lg-3 col-md-12 footer-contact text-center text-md-start">
                <h4>Contact Us</h4>
                <p>
                    <strong>Phone:</strong> +91 9911891921<br>

```



```

        <strong>Email:</strong> ny683500@gmail.com<br>
    </p>

</div>

</div>
</div>

<div class="container mt-4">
    <div class="copyright">
        &copy; Copyright <strong><span>AgroAnalyze</span></strong>. All Rights Reserved
    </div>
    <div class="credits">
        <!-- All the links in the footer should remain intact. -->
        <!-- You can delete the links only if you purchased the pro version. -->
        <!-- Licensing information: https://bootstrapmade.com/license/ -->
        <!-- Purchase the pro version with working PHP/AJAX contact form: https://bootstrapmade.com/impact-bootstrap-business-
website-template/ -->
        Designed by <a href="https://bootstrapmade.com/">BootstrapMade</a>
    </div>
</div>

</footer><!-- End Footer -->
<!-- End Footer -->
<a href="#" class="scroll-top d-flex align-items-center justify-content-center"><i class="bi bi-arrow-up-short"></i></a>
<div id="preloader"></div>
<!-- Vendor JS Files -->
<script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
<script src="assets/vendor/aos/aos.js"></script>
<script src="assets/vendor/glightbox/js/glightbox.min.js"></script>
<script src="assets/vendor/purecounter/purecounter_vanilla.js"></script>
<script src="assets/vendor/swiper/swiper-bundle.min.js"></script>
<script src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>
<script src="assets/vendor/php-email-form/validate.js"></script>

<!-- Template Main JS File -->
<script src="assets/js/main.js"></script>
</body>
</html>

```