

**ADOPTION OF DRONE-BASED PRECISION FARMING
TECHNOLOGIES AMONG PADDY FARMERS IN
BATTICALOA DISTRICT**



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2026

ABSTRACT

The research examines the adoption of drone-based precision farming among paddy farmers in Sri Lanka's Batticaloa District, where agriculture remains a key economic activity. Despite its importance, the sector faces persistent challenges such as labor shortages, rising input costs, and declining productivity. The study surveyed 100 paddy farmers using structured questionnaires and applied statistical tools, including Chi-square tests, regression, correlation, and paired t-tests, to analyze the data. Findings revealed that 58% of farmers had adopted drone technology mainly for pesticide and weedicide spraying, while overall awareness stood at 82%. The adoption of drones led to a notable reduction in average production costs (from Rs. 8,250 to Rs. 4,544.83) and a significant increase in yield (from 1,501.03 kg/acre to 1,612.93 kg/acre). Key determinants of adoption included education level, training, awareness, perception, confidence, and gender, with land size having a positive impact and farming experience showing a slight negative effect. The study concludes that drone-based precision farming improves efficiency, reduces input costs, and enhances farm profitability. However, widespread adoption is hindered by high equipment costs, limited technical knowledge, and insufficient institutional support. The research recommends that the government and relevant authorities provide training programs, financial incentives, and awareness campaigns to promote the effective integration of drone technologies into paddy cultivation for a more sustainable and technology-oriented agricultural future in Sri Lanka.

Keywords: Awareness, drone technology, paddy cultivation, precision farming,

TABLE OF CONTENTS

ABSTRACT	i
TABLE OF CONTENTS	ii
LIST OF TABLES.....	vi
LIST OF FIGURES	viii
LIST OF ABBREVIATIONS	ix
CHAPTER 1	1
1. INTRODUCTION.....	1
1.1. Background.....	1
1.2. Problem statement.....	2
1.3. Objectives.....	3
1.3.1. Main objective	3
1.3.2. Sub objectives.....	3
1.4. Significance of the study	3
CHAPTER 2	5
2. LITERATURE REVIEW	5
2.1. Introduction to precision farming.....	5
2.1.1. Definition and concept of precision farming	5
2.1.2. World population of paddy farming	5
2.1.3. Rice cultivation in Sri Lanka	6
2.1.4. Taxonomy of rice.....	7
2.1.5. Classification of the rice plant	8
2.1.6. Nutritional value of rice	8
2.1.7. Drone concept.....	9
2.1.8. Drone and agriculture	10
2.2. Precision Agriculture Using Drone Systems.....	11
2.2.1. Drones in Agriculture: A Historical Overview	11
2.3. Drone use in agriculture	11
2.3.1. Analysis of soil and field	11
2.3.2. Planting seeds	12
2.3.3. Precision spraying.....	12
2.3.4. Application of Fertilizer.....	12
2.3.5. Spraying of Herbicides and Pesticides.....	13

2.4.	Level of adoption of drone-based precision agriculture technologies in paddy cultivation	13
2.5.	Challenges faced by paddy farmers in Batticaloa district	14
2.6.	Summary of Research Gap	16
CHAPTER 3		17
3.	METHODOLOGY	17
3.1.	Introduction	17
3.2.	Research Design	17
3.3.	Description of the Study Area	17
3.4.	Selection of sample	19
3.5.	Sampling Technique	19
3.6.	Data collection	19
3.6.1.	Primary Data	19
3.6.2.	Secondary Data	20
3.7.	Study Period	20
3.8.	Data Analysis	20
3.8.1.	Socio-Economic Analysis	20
3.8.2.	Factors Influencing Drone-Based Paddy Cultivation	20
3.8.3.	Present Situation of Farmers' Awareness of Drone Technology	21
3.8.4.	Farmers' Perception of Drone Technology	21
3.8.5.	Constraints and Challenges Associated with Drone Technology Adoption	21
CHAPTER 4		22
4.	RESULTS AND DISCUSSION	22
4.1.	Introduction	22
4.2.	Socio-demographic characteristics of farmers	22
4.2.1.	Gender of the respondents	23
4.2.2.	Marital Status of the Respondents	24
4.2.3.	Educational Attainment of the Respondents	25
4.2.4.	Main Occupation of the Respondents	26
4.3.	Farming-related profile	26
4.3.1.	Farming engagement	27
4.3.2.	Land ownership	28
4.3.3.	Irrigation Method	29

4.4.	Awareness about drone-based precision farming.....	29
4.4.1.	Sources of information about DPT	30
4.5.	Drone-based Precision Technology related information.....	31
4.5.1.	Respondents’ Self-Rated Knowledge of Drone-Based Precision Technology.....	31
4.5.2.	Respondents’ Perception of Using Drone-Based Precision Technology.....	32
4.5.3.	Respondents’ Confidence in Using Drone-Based Precision Technology	32
4.5.4.	Respondents’ Willingness to Recommend Drone-Based Precision Technology (DPT) to Others	33
4.5.5.	Awareness of Benefits Associated with Drone-Based Precision Technology (DPT) Among Adopters and Non-Adopters	34
4.6.	Adoption of DPT.....	35
4.6.1.	Adoption status	35
4.6.2.	Purpose of using DPT	36
4.6.3.	Respondents’ Satisfaction Levels with Drone-Based Precision Technology.....	37
4.6.4.	Willingness to continue with DPT	38
4.6.5.	Perceived benefits for using DPT	39
4.6.6.	Challenges in using DPT	40
4.6.7.	Drone Ownership Status Among Adopters of Drone-Based Precision Technology.....	41
4.6.8.	Types of Drone Providers.....	41
4.7.	Barriers to Adoption.....	42
4.7.1.	Using DPT in the future.....	43
4.7.2.	Participant Interest in Attending Training on Drone-Based Precision Technology	44
4.8.	Institutional support for adoption and suggestions	44
4.8.1.	Prior Training Received for Drone-Based Precision Technology Use.....	44
4.8.2.	Respondents’ Access to Government Support for Drone-Based Precision Technology	45
4.8.3.	Respondents’ Suggestions to Enhance Adoption of Drone-Based Precision Technology.....	46
4.9.	Effect of drone-based precision farming adoption on cultivation cost and paddy yield... ..	47
4.10.	Relationship Analysis.....	49
4.10.1.	Association between socioeconomic and institutional factors and adoption of drone-based precision farming	49
a)	Association Between Education Level and Adoption of Drone-Based Precision Technology	49

b) Association Between Training Received and Adoption of Drone-Based Precision Technology	50
c) Association Between Gender and Adoption of Drone-Based Precision Technology... ..	51
d) Association Between Awareness of Drone-Based Precision Technology and Adoption Status	52
e) Association Between Land Ownership Type and Adoption of Drone-Based Precision Technology	53
f) Association Between Perception Level and Adoption of Drone-Based Precision Technology	54
g) Association Between Confidence Level and Adoption of Drone-Based Precision Technology	55
h) Association Between DS Division and Adoption of Drone-Based Precision Technology	56
4.10.2. Correlation between the adoption of DPT and key continuous variables	57
4.10.3. Logistic regression analysis of adoption determinants	58
CHAPTER 5	59
5. CONCLUSION	59
5.1. Recommendations	60
REFERENCES	61
ANNEXURE 1: QUESTIONNAIRE	64
ANNEXURE 2: FIELD PHOTOGRAPHS	71