

## Identification of Reasons for Higher Percentage of Tea Off Grades in Tea Processing

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### Introduction

Sri Lanka is one of the major tea exporting countries in the world. Sri Lankan tea has unique characteristics and reputation as the best tea in the world (Zoysa, 2008). Tea grading is essentially a classification of the product in terms of particle size, shape and cleanliness (Ziyad *et al.*, 2004). Off grades have lower price than main grades. But, its cost of production is higher than main grades. Off grade tea reduces the quality of the end product (Samaraweera *et al.*, 1988). This research was conducted with the aim of identification of reasons for the higher percentage of tea off grades.

### Methodology

This study was conducted at Wewessa tea factory of Balangoda Plantations PLC from April to July 2012. Leaf count book, Withering, Rolling and Drying room book, Tea book and monthly sales analysis report were used for gathering data. Off grade percentage was considered as dependent variable and good leaf percentage, withering percentage, big bulk percentage and moisture content percentage of fired tea were considered as independent variables.

Three types of data analyses were used to achieve the objectives of the research. Descriptive statistics were used to evaluate the monthly average good leaf percentage, withering percentage, big bulk percentage, moisture content percentage of fired tea and off grade percentage. Correlation analysis was carried out to find out the impact of the relationship between the dependent and independent variables. Multiple regression analysis was conducted to find out the definite relationship between independent and the dependent variables.

### Results and Discussion

Table 1: Correlation between off grade percentage & Dimensions of Independent variables

Correlation between off grade percentage and dimension of Independent variables	Pearson Correlation	P- Value	Status of Correlation
Good Leaf Percentage	- 0.505	0.02	Strong Negative Relationship
Withering Percentage	- 0.014	0.046	Weak Negative Relationship
Big Bulk Percentage	0.212	0.09	Weak Positive Relationship
Moisture content percentage of Fired Tea	0.0522	0.082	Weak Positive Relationship

Good leaf percentage and withering percentage showed a negative relationship with the off grade percentage (Table 1). Big bulk percentage and moisture percentage of fired tea showed a positive relationship with the off grade percentage.

Table 2: Results of the multiple linear regression analysis

Predictor	Coefficient	Standard Error	T-Value	P-Value
Constant	-97.0	193.6	-0.50	0.032
Good Leaf Percentage	-0.0627	0.8673	-0.07	0.044
Withering Percentage	-1.137	2.354	-0.48	0.045
Big Bulk Percentage	0.1648	0.8941	0.18	0.049
Moisture Content of Percentage Fired Tea	0.071	82.28	0.86	0.417

The regression equation was,

$$\text{Off grade percentage (Y)} = -97 - 0.63 \text{ GP} - 1.13 \text{ WP} + 0.165 \text{ BP} + 0.071 \text{ MP}$$

Based on this equation when all the independent variables are equal to zero the value of off grade percentage is -97. When good leaf percentage increases by one unit, off grade percentage decrease by 0.63. When withering percentage increases by one unit, the off grade percentage decreases by 1.13. While big bulk percentage increases by a unit, the off grade percentage increases by 0.165. When moisture content percentage of fired leaf increases by a unit, the off grade percentage increases by 0.071.

### Conclusion

Findings revealed that there is a negative relationship between tea off grade percentage with good leaf percentage and withering percentage. Positive relationship was found between tea off grade percentage with big bulk percentage and moisture content of fired tea. Standard of green leaves (Good leaf percentage) is one of the major reasons that determine the percentage of tea off grades.

### References

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