

RECENT TRENDS IN LOW-GROWN TEA PROCESSING

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INTRODUCTION

There is an increased market preference towards Broken and Small leaf grades of low-country teas. Traditional Flowery grades and Orange Paoe grades continue to fetch remunerative prices, however that demand seem to be declining.

Producers are very likely to alter the grade composition of their produce by ad-hoc adjustments in processing techniques. Proper shift towards increased percentages of Broken and Small leaf grades however require a careful study of existing machinery, capital investments involved and the effects on the cost of production.

TRADITIONAL METHOD

Conventionally, techniques in low-grown tea processing in Sri Lanka are geared towards the production of stylish Flowery grades with show of tips, neat black Broken grades and well sorted wiry grades. A typical rolling programme would involve:

- (a) Initial rolls with light rolling for extraction of Flowery grades such as FBOP, FBOPF, FBOPF 1, *etc.*;
- (b) Subsequent rolls with hard rolling for extraction of Broken grades such as BOP1, BOP, BOPF and Dusts; and,
- (c) Sorting of balance bulk to form OP grades such as OP, OPA, *etc.*

Normal practise is to extract dhools on No. 4 Nylon or galvanised iron mesh on oscillatory roll-breakers which removes well rolled leaf from the bulk irrespective of the length of particles.

These dhools are dried in conventional driers with trays having perforations as large as 3.0 mm.

MARKET TRENDS

In the past, well made Flowery grades, large Broken and stylish OP grades commanded premium prices at the Colombo Auction, whilst small size Brokens and Dusts fetched comparatively lower prices. In the recent past, traditional consumers of Sri Lanka low-grown teas have shown increased preference to Brokens and Dust grades. Among probable reasons for this change in preference are, prevailing economic conditions in the consumer countries, inclinations towards convenience products such as tea bags, and relatively high cost of freight of low bulk density teas. In spite of slightly reduced demand for traditional low-country grades, well made teas continue to command premium prices.

Sri Lanka low-grown tea producers are very likely to change their grade composition by adjusting the method of manufacture in order to meet the buyer demands. This paper is intended to discuss merits of their possible options and also to highlight those parameters which require particular attention.

TOWARDS INCREASED PRODUCTION OF BROKENS AND SMALL LEAF GRADES

Brokens and Small leaf grades are bought for their characteristics such as strength and colour, quality, if any, and the brightness in infusion. Any changes in processing techniques should therefore enhance these characteristics.

If the percentage production of Brokens and Small leaf grades were to be increased:

- (i) rolling has to be severe; and,
- (ii) roll-breaking has to be done on smaller meshes.

Orthodox rollers having suitable central fittings can be effectively used to achieve the severity by increase of pressure on leaf. For example, steep Rettie cones would be more suitable for this purpose than mild

Rettie cones. Alternatively, machines such as the Rotorvane can be used in early dhool production. It will be of vital importance however to restrict the dhool temperature below the critical limit of 34°C due to detrimental effects of high temperatures on characters such as brightness of leaf infusions. Both rotorvaning preceded by leaf preconditioning as well as high pressure orthodox rolling produce considerable increase in leaf temperature, the former to a higher degree than the latter (Kirtisinghe and de Silva 1970). Under low-country conditions, due to high ambient temperature, it would be near impossible to maintain leaf temperature below the critical level without resorting to night time manufacture. An orthodox programme would have the flexibility in that the pressure ON-OFF periods can be adjusted to cause more circulation of rolled leaf and thereby restrict the temperature gain, even at the disadvantage of producing a lower percentage of early dhools.

In both methods, wiry as well as large leaf particles are eliminated. Rotary-type roll breakers give more even dhools and therefore would be preferred to commonly used oscillatory-type machines for the extraction of small size dhools. This should be done on No. 5, 6 and/or 7 meshes in order to minimise handling of made teas during grading operations. Additionally, rotorvanned dhools should be aerated in an aerator-ball-breaker to facilitate efficient extraction.

Liquoring characteristics of Broken and Small leaf grades can be optimised by proper control of temperature and fermentation closely monitored by the skilled factory personnel. In this regard, humidification of the rolling room, particularly the fermenting area would become very essential.

Keeping quality of made teas largely depend on:

- (a) the moisture content of dried dhools; and,
- (b) subsequent absorption of moisture during sorting and packing operations.

The size of dryer tray perforations is one of the main factors that need close attention prior to change over to smaller size grade production. A suitable range

would be 1.8 - 2.2 mm, or otherwise heavy fall-through of dhools would be experienced resulting in underfired teas with poor keeping qualities. Substitution of trays having suitably finer perforations is a costly operation. Some ad-hoc less expensive methods are commonly adopted, however their success is mixed and cannot be recommended.

Sorting room operations are considerably straightforward with increased production of Broken and Smaller grades. Excessive winnowing or hand sieving and such practises which often results in moisture absorption should be eliminated.

COST IMPLICATIONS

Producer contemplating changeover to increased percentage production of Broken and Small leaf grades will have to consider the following capital investments:

- (i) Substitution of suitable dryer trays;
- (ii) Modifications to central fittings in orthodox rollers;
- (iii) Changeover to suitable roll-breaker meshes.

Alternatives to (ii) are:

- (ii) (a) Rotorvanes and feed conveyors; and,
- (ii) (b) Aerator ball-breakers.

A preferred alternative to (iii), is:

- (iii) (a) Rotary type roll-breakers with suitable meshes.

The following are among probable changes in the cost of production:

- (i) Increased cost of withering, if night manufacture is to be practised;
- (ii) Increased cost of electrical power;
- (iii) Decreased cost of sorting room labour;
- (iv) Decreased cost of packing of graded teas.

REFERENCES

- KIRTISINGHE, D. and DE SILVA, W.C.A. (1970) Rotorvane manufacture of China Jat leaf and the effects of the floral and iris end plates. *Tea Q.* 41, 121-125.