

GRADING TEA WITH STAMPED ALUMINIUM SIEVES

III.—THE ARNOTT FILTRATE SIFTER

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In previous articles⁽¹⁾ the use of stamped aluminium sieves for grading tea has been described in some detail. There is not any doubt that stamped aluminium is superior to ordinary mesh under comparable conditions. The study of its use has therefore been extended to different types of grading machines, in order to cover possible differences due to the action of the machine in which the sieves are employed.

This article deals with the results of tests on an Arnott Filtrate Sifter fitted with stamped aluminium meshes. The Arnott Filtrate Sifter is essentially a series of four sieves one above the other with a fifth and smaller dust sieve at the bottom. The sieves are fixed in a common frame which is vibrated by a rod driven from a crank running in an oil bath. The amplitude of the vibration is small and the frequency high. When ordinary mesh was employed in the machine, comparison with our normal sifting process employing stamped aluminium sieves was unfavourable since both Colombo and London tasters preferred teas from the normal process. The reported differences were not as marked as might have been expected since teas sifted over stamped aluminium have consistently received markedly better reports than those sifted on wire weave, and on this account differences due to the sifting action were suspected. Stamped aluminium sieves were therefore fitted to the Arnott Sifter and careful comparison made with the normal grading process in these circumstances.

For some time past we have repeatedly reported the different requirements of the Colombo and London markets as shewn in our experimental results. The Colombo market is particularly concerned with the appearance of teas and anything approaching greyness prejudices its sale on that market to a greater extent than in London.

Standards of appearance accepted in Colombo are readily accepted in London and for the purpose of these grading experiments it has been considered sufficient to obtain Colombo tasters' opinion.

The sieves fitted to the Arnott Sifter were chosen so as to give the out-turn of various grades usual in St. Coombs factory and comparisons were made on this basis. Any other orthodox grading process can of course be copied by the choice of suitable sieves.

RESULTS

In the final tests the out-turn of grades was as follows:—

		Arnott %	Normal %
B.O.P.	...	58	57
F.P.	...	22	20
B.P.	...	3.5	2.5
P.	...	1.5	2.5
Fannings	...	10	12
Dust	...	2.5	3.5
Broken Mixed	...	2.5	2.5

The composition of grades determined by sifting on standard sieves was as follows:—

Particle size	B.O.P.		F.P.		Fannings	
	Arnott %	Normal %	Arnott %	Normal %	Arnott %	Normal %
Over 5			5	5		
Through 5 and over 8	8	14	28	30		
„ 8 „ 10	39	30	11	17		
„ 10 „ 12	26	27	11	18		
„ 12 „ 16	20	22			16	17
„ 16 „ 20	7	7			29	29
„ 20 „ 30					45	41
„ 30					10	10

These mechanical analyses show that the Arnott Sifter is capable of producing the same percentage of grades and that the grades so produced have the same composition as grades normally sifted.

The tasters valued the teas graded as above at the following figures:—

		Arnott Cts.	Normal Cts.
B.O.P.	...	90	88
F.P.	...	96½	93
B.P.	...	78½	75½
P.	...	94	92½
Fannings	...	72½	72

London tasters would not make the same amount of difference, but the work of the sifter would meet with approval on that market.

Since grading is a multiple operation, involving not only machine sifting but also winnowing, picking and a certain amount of hand sifting, the actual rate of working of sifting machines cannot be compared directly. The work of the sifting machine may accelerate or retard the subsidiary processes if the grades are to be standardised, and on this account the output of the sifting room staff per day using either of two different sifting machines is the most accurate basis for comparison. Employment of the Arnott Sifter raised the output of the sifting room from 1,250 lbs. per day to 1,700 lbs. per day.

SUMMARY AND CONCLUSIONS

Teas sifted on an Arnott Filtrate Sifter, fitted with stamped aluminium sieves, have been carefully tested against a normal sifting process, normally employed for selling on the Colombo market where grading and appearance are of particular importance. The grades from the Arnott Sifter were practically identical in mechanical composition with the normal grades and the Arnott process was much quicker to work and simpler in operation.

The teas graded on the Arnott Sifter were approved by tasters and were valued higher on the Colombo market.

The Arnott Sifter was easily matched to an existing grading programme in the case described above by choice of suitable stamped aluminium sieves.

Any normal grading programme can be carried out on the Arnott Sifter fitted with stamped aluminium by reference to *The Tea Quarterly* (1939), Vol. XII, p. 179.

REFERENCES

- (1). *Tea Quarterly* (1939), Vol. XII, 179.
(1937), Vol. X, 191.
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