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DEVELOPMENT PROGRESS REPORT

SEPTEMBER - DECEMBER 1977

4th January 1978

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1. ENGINEERING AND PROCESS DEVELOPMENT

1.1 Tobacco Processing

Examination of cases of redried lamina from the Indian 1976 crop showed that, as had been found with the 1975 crop, excess water had been imported into the U.K. ⁽¹⁾ The uniformity of packing of the lamina, which had been distributed manually within the cases at the redrying stations, was between average and poor and it was recommended that a mechanical means of distribution should be adopted ⁽⁵⁾.

The uniformity of packing of lamina from the Brazilian 1976 crop was found to be poor and remedial action at the packing station was recommended ⁽⁶⁾.

1.2 Cigarette Manufacture

For the cigarette weight performance monitor type 'S', which is the portable version for use with individual machines, a report has been issued describing the use of the monitor and explaining the information provided by it ⁽⁹⁾.

Prolonged production running of two potential alternatives to Swift's TK.9001 tipping adhesive has continued. National 033-1110 has proved to be reliable and versatile but the performance of an adhesive offered by Samuel Jones has been inconsistent.

A Molins Mk.9 has been installed temporarily in GRDC in order that the application to it of an Arenco DOQ mentholating unit may be developed.

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1.3 Filter Manufacture

A claim by Hauni that the use of a smooth roller in place of one of the threaded rollers on a tow opener would reduce filter rod pressure drop variation has been investigated on a Hauni KDF.2/AF.2 in the Southampton factory. Although the claim was substantiated in so far as pressure drop variability was less with the smooth roller, this was at the expense of a reduced mean pressure drop for the same tow weight⁽⁴⁾.

Examination of a new tow from Celanese Fibres, said by them to have a very low filament denier as a result of an improved production technique, has shown no evidence of a real breakthrough⁽⁸⁾.

The supply to Venezuela of ten automatic inspection units for use on Molins DAPTC machines has been completed and a user's handbook has been prepared⁽¹¹⁾.

1.4 Packaging

Resumption of work carried out in GRDC some years ago has re-confirmed that simple modifications to a Molins WMH2 wrapper can improve the shelf life of packs wrapped in coated polypropylene film by about 50%. With heat sealable, co-extruded polypropylene film, the shelf life can be improved so that it at least matches that obtained with the coated film on a standard wrapper⁽⁷⁾.

Sound level measurements made around the Schmermund high speed, hinged lid packer during evaluation at 250 packs per minute in the Southampton factory showed that it met the current BAT criterion⁽¹⁰⁾. A speed increase to 300 packs per minute raised the sound level to marginally above the criterion⁽¹²⁾.

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2. WASTE TOBACCO UTILIZATION

The evaluation of SRT and PJS supplied to BAT Associates has continued.

To estimate the potential for RTS production in Argentina, samples of waste tobacco from the Nobleza and Piccardo factories have been analysed. Redrying plant waste samples have not yet been received. However, a plant equipment schedule is being drawn up which, when production requirements are ascertained, will enable the equipment costs to be determined in Argentina.

The prospects for a small Arenco DIB plant for tobacco reconstitution in Tanzania have been examined. If existing buildings and services are adequate, the return on investment has been provisionally estimated at 20%. The return is sensitive to the capital cost estimate and a more detailed study, including an analysis of samples of waste tobacco, is required if it is decided to proceed further.

The possibility of utilizing Javanese cigar stem, surplus to Henri Winterman's requirements, in a flue-cured type PRT has been examined⁽²⁾.

Various levels of cigar stem were incorporated in 50% total stem: 50% flue-cured lamina PRT.

Cigar stem inclusion resulted in increased nitric oxide deliveries and slightly reduced puff numbers of 100% PRT cigarettes, both effects being attributable to the high cigar stem nitrate content (4.07%). The deliveries of formaldehyde and O/WP cyclic carbonyl compounds were reduced to a greater degree than expected from the concomitant puff number reduction. The O/WP yields of nitrogen compounds (including nicotine but excluding pyrazines) were increased by the presence of cigar stem.

The WOODROSE smoke panel found no significant differences between Blend 72 tipped cigarettes containing 10% PRT regardless of the PRT cigar stem level. However, two WOODROSE panel

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members noticed an increase in air-cured character of the same cigarettes (untipped) when the PRT contained more than 25% cigar stem. It was concluded that cigar stem could serve as a total or partial replacement for flue-cured stem in PRT depending on the level of incorporation of PRT in cigarette blends.

If cigar stem were used, its high total bacteria level ($8.6 \times 10^6 \text{ g}^{-1}$) and rather "stringy" nature might entail some revision of plant hygiene and material handling procedures, but the cost of any changes might be more than offset by enhanced product yields (resulting from the low cigar stem solubles content of 40%) and reduced raw material costs.

A survey of the quality and availability of waste tobacco from the Southampton and Liverpool factories has been carried out since, from 1.1.78, waste will not require milling prior to deposit for drawback⁽³⁾. It has been estimated that between 349 and 594 tonnes/year of +250 micron (60 B.S. mesh) material could be recovered for use on the PRT plant at Glory Mill, based on 1977 factory throughputs. Stem content of the utilisable waste would be 54% and 35% respectively, and silica content acceptable at about 1%.

Machinery requirements for recovering the utilisable waste have been considered in general terms and information on a similar operation in Germany has been sought.

NEW/PJN/JKM/YP/38A
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LIST OF REPORTS ISSUED

<u>Ref.</u>	<u>Report No.</u>	<u>TITLE</u>
1	RD.1515-Restricted	The Moisture Content of Cases of Lamina at Entry to the U.K. - Indian 1976 Crop.
2	RD.1521- "	The Evaluation of Javanese Cigar Stem in Flue Cured PRT.
3	RD.1533- "	BAT (UK&E) Waste Tobacco Survey.
4	RD.1536- "	Evaluation of a Hauni Tow Opening 'Smooth' Roller on a Hauni KDF.2/AF.2 Filter Rod Making Machine.
5	RD.1542-Unclassified	Density Variations within Cases of Flue-Cured Lamina - Indian 1976 Crop.
6	RD.1543- "	Density Variations within Cases of Flue-Cured Lamina - Brazil 1976 Crop.
7	RD.1546- "	Improved Film Sealing on Molins WMH.2 Wrapper.
8	RD.1547-Restricted	Evaluation of Type 'B' Filamentary Filter Tows Manufactured by Celanese Fibres Corporation.
9	E.209-Unclassified	The Use of the Cigarette Weight Performance Monitor/S to Monitor the Individual Weight Performance of a Cigarette Making Machine.
10	E.211- "	Sound Level Measurements - Schmermund Packer - BAT (UK&E) Ltd., Southampton.
11	E.212- "	Handbook for DAPTC Machine Dual Plug Automatic Inspection System.
12	E.213- "	Sound Level Measurements - Schmermund Packer, BAT (UK&E) Ltd., Southampton. Second Report.

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