National Center *for* Tobacco-Free Kids

AGRICULTURE BRIEFING PAPER 03

LOWERING LEAF CONTENT, BOOSTING PROFITS

With tobacco use increasing in many countries, one would expect cigarette manufacturers to be purchasing more and more tobacco leaf. But thanks to new technologies that allow them to artificially inflate the volume of tobacco leaf, the cigarette companies are actually using less and less per cigarette. These new technologies also allow manufacturers to convert the sweepings from their factory floors into filler that tastes like natural tobacco and even looks like the original to the untrained eye.[1]

Puffing Up Profits

One of the most popular expansion processes in use today is the dry ice expanded tobacco process (DIET) which was invented by a Philip Morris joint venture in 1979. This involves soaking the cut filler tobacco with liquid carbon dioxide which solidifies at atmospheric pressure. Hot gases are then pumped into the mix, heating the tobacco which causes the dry ice to vaporize and thus the tobacco to puff up. "If you send us rubbish, we will return only bigger portions of rubbish," says Phil Green, plant manager at BAT's Corby factory in the United Kingdom which uses the DIET process.[2]

In the past, expansion was also done with chlorofluorocarbons (CFCs) until their use was banned because of the harmful effect of CFCs on the ozone layer. Other companies have devised newer methods: the German cigarette manufacturer Reemtsma uses nitrogen in a process called INCOM while British cigarette maker Imperial uses isopentane in a process called IMPEX instead of carbon dioxide. All these methods claim a 60 to 100% expansion rate.[3]

Expanded tobacco costs a little more but it has several benefits for manufacturers. The ability to fill a cigarette with less tobacco means higher profits and lower taxes because most countries tax tobacco imports by weight. These lighter cigarette also have lower overall machine-measured tar and nicotine levels and also burn faster, delivering the tobacco more quickly, says Green. He estimates that in the near future 10% of full-flavor brands, 20% of lighter cigarettes and between 40 to 50% of ultra-light cigarettes will have expanded tobacco.[4]

Waste Not, Want Not

For over 50 years, scientists at the major tobacco multinationals have been working to figure out ways to follow the old adage "waste not, want not." Enter reconstituted tobacco—available as slurry or paper—made from the by-products and waste from tobacco processing such as tobacco stems, small tobacco particles and tobacco dust.[5] The reason these parts of the tobacco plant must be reconstituted rather than put directly into the cigarette is because they are not palatable to smokers in their raw form. As *Tobacco Reporter* puts it, "Stem has been traditionally been regarded as one of the less desirable parts of the tobacco plant. It produces harsh smoke and is difficult to process."[6]

In the slurry process adhesives are added to the ground tobacco raw materials.[7] But the most popular form of reconstituted tobacco is "paper tobacco" which comprises 70% of the market and is gradually edging out the slurry process. "It's basically the same process as making paper. You take the water solubles out of the raw material until only fibers are left. That forms a sheet, and then the solubles are put back in," says *Tobacco Reporter*.[8]

Nicolas Baskevitch, director of research for Schweitzer-Mauduit International (an Atlanta-based company which supplies all the major tobacco multinationals with cigarette paper) estimates that the industry manufactures as much as 240 million tons a year of paper-made "reconstituted tobacco." He says "it is an essential part of the dependable, rich flavor consumers expect" from "American blend" cigarettes. This "essential part" can contain a stem content of up to 80% derived from a mix of burley, flue-cured and oriental tobaccos, says Baskevitch.[9]

The use of reconstituted tobacco also allows manufacturers to put additives into the final product. According to a 1996 affidavit by Jerome Rivers, a former Philip Morris employee, "One of the ingredients regularly added to the slurry at the BL plant [Philip Morris's blended leaf factory in Richmond, Virginia] was ammonia. Other ingredients included alcohol-based flavors, sugars, urea, and glycerine."[10]

One of the latest methods for manufacturing reconstituted tobacco is to add tobacco materials directly to an ammonium solution. This resulting slurry is steam pressurized for up to five minutes and then depressurized rapidly to be formed into a second slurry which is then cast into a reconstituted tobacco sheet.[11] Cigarette manufacturers then put these reconstituted tobacco sheets (which do not resemble tobacco leaf) through the expansion process. The sheets are "puffed up" to look like particle board and subsequently fed into giant mills which shave them into the little golden curls which look almost identical to natural cured tobacco leaf.

These and other methods have allowed manufacturers to slash the amount of tobacco they use per cigarette. According to the U.S. Department of Agriculture, U.S. cigarette companies reduced the amount of tobacco leaf they put in each cigarette by 27% between the early 1960s and 1999.[12]

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[1] *Chris Glass, "Paper Tobacco,"* Tobacco Reporter, *August 1998.*
[2] *Rhonda Lee, "Expanding Horizons,"* Tobacco Reporter, *October 1998.*
[3] *Ibid.*
[4] *Taco Tuinstra, "Swelling Profits," Tobacco Reporter, August 1999.*
[5] *Sworn affidavit made by former Philip Morris employee Jerome Rivers on March 7, 1996 to the United States Food and Drug Administration;* http://www.gate.net/~jcannon/documents/jrivers.txt
[6] *Taco Tuinstra, "Rethinking Stem,"* Tobacco Reporter, *July 1999.*
[7] *John See, "Tastes Great," Tobacco Reporter, December 1998.*
[8] *Glass, op. cit.*
[9] *See. op. cit.*
[10] *Rivers testimony. op. cit.*
[11] *"Making Reconstituted Tobacco Using Exploded Tobacco,"* Tobacco Reporter, *September 1999.*
[12] *Tom Capehart, USDA Economic Research Service,* Tobacco Situation and Outlook, *September 2000, Table 28.*