10

Current and future market trends

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10.1 Introduction

Cellulosic fibres form part of the artificial fibre industry, a 20th century creation that sits, sometimes uneasily, between three great industries upstream – agriculture, forestry and petrochemicals – and the ancient textile industry downstream of it. It is necessary to define a few terms. 'Textiles' in the general sense can cover the manufacture of fibres, yarns, fabrics and apparel. But in the narrow sense the textile industry makes yarns and fabrics from fibres, for the making-up (or apparel) industries to process into garments. Although this breakdown (fibres, textiles, apparel) is commonly used, it ignores the fact that an appreciable proportion of textiles do not end up as apparel, but as household goods and in industrial and technical uses.

The textile industry (in its widest sense) abuts the plastic film, leather and fur, and the paper industries. There are products in each case that could be categorised in the textile industry, or in one of these three – for instance baler twine, reinforced papers, airlaid wood pulp, some agritextiles.

Some yarns are produced as continuous filament (silk and many synthetic fibres), others are spun by the modern equivalents of the manual cottage industry spinning whorl seen in medieval paintings. But artificial staple fibres are also said to be spun, because spiders (and silkworms) have also been described as spinning their web (or cocoon). In fact we should say that spiders extrude a polypeptide monofilament to produce a structured non-woven web. But such phrases would not inspire poets. Synthetic fibres, however, should be described as extruded rather than spun. The very term 'fibre' is used in different ways – in Asia it usually means staple (and by implication not filament), elsewhere the term will include both products. Staple again can be used generically to cover staple, tow and tops (i.e. to distinguish from filament), or it may be used to mean staple as opposed to tow or tops. (Tow is the precursor to staple, which is produced by either

cutting or stretch-breaking tow. Tops are produced from stretch-broken tow for woollen or worsted spinning).

The meaning of these basic terms has to be deduced from their context, a skill usually quickly acquired by newcomers to the industry, if a constant source of confusion to its financial analysts.

The fibre industry buys material in large units of mass (tonnes, bales) and sells in smaller units (kg or pounds), albeit with a linear dimension specified (denier or dtex, the weight in grams of 9000 m and 10 000 m, respectively. A silkworm produces on average 9000 m of filament in each cocoon). The textiles are then sold in a like manner (yarns) or by area (square yards or square metres). Fabric is sometimes specified just in metres, the width being understood by context. Then the making-up industry changes to numbers of pieces (often in dozens, for clarity), before the retail outlet sells on an individual basis. A fibre maker therefore runs a large capital intensive factory, resembling a chemical works, but has to understand the very different environments existing before the final buyer. The industry is still going through remarkable transformations as some of the great names of the past disappear from it – Courtaulds, Akzo, and Hoechst following ICI, and even DuPont having second thoughts about some products. One interesting trend is for firms to be broken up into single fibre business units which then become part of privately owned vertically integrated firms – DuPont/Sabanci/Alpek, Hoechst/Koch/Saba/Texmaco, Enichem/Orlandi, Acordis (via CVC).

Any market analysis has to take all this into account.

10.2 The broad picture

The cellulosic fibre market is part of the total fibre market, which includes natural and synthetic fibres as well. There is no general agreement on the scope of the fibre market – many agencies collect and publish statistics, but include or exclude different fibre types. It is useful to bear in mind the breakdown given in Table 10.1

Given that some US sources do include glass, metal and asbestos fibres, and that total jute consumption is almost 3 million tonnes it is clear that some care needs to be taken with such statements as 'the total fibre market is *x* million tonnes'. Polypropylene is the fastest growing fibre (at the expense in part of cellulosics), but worldwide coverage is still patchy, and there are no reliable time series back to the 1980s or further. Table 10.2 shows the 'big picture' for the worldwide fibre market from 1900 to 2000, with an indication of the total market in 2050.

By the year 2000, cellulosic fibres declined from a peak in absolute tonnage at some 3.5 million tonnes in 1975 (but that was actually at a market share of 2% points lower than in 1950 when they had a 13% share)

Table 10.1 Conventional statistical coverage of fibres

	Usually included:	Usually excluded:
Natural	Cotton, wool	Flax, sisal, kenaf, silk, coir, jute
Synthetic	Polyester, acrylic, nylon, (polypropylene)	Polyethylene, elastanes, aramids (polypropylene)
Cellulosics	Viscose/rayon, acetate, cupro	Lyocell
Others	None	Metal, glass, asbestos

Table 10.2 World fibre market 1900–2050 (million tonnes)

	Natural fibres	Cellulosics	Synthetics	Others[a]	Total
1900	4	0		1.5	5.5
1925	6	0.015		2.5	8.515
1950	7	1.5	0.07	3	11.57
1975	14	3.5	8	6.5	32
2000	20	3	25	7	55
2050					140[b]

[a] Others includes all but cotton, wool, viscose/rayon, acetate, polyester, nylon, acrylic, polypropylene and metal/glass/asbestos. Some of these figures are estimates.
[b] TFNJ estimate.

to about 3 million tonnes, 5% share. The most noteworthy element of this table is the swift rise in the share of synthetics (polyester, nylon, acrylic and polypropylene).

The world population in the years shown in Table 10.2 was (in billions) 1.6, 1.9, 2.5, 4.1, 6.2 and a projected 11. The 10-fold increase in the total market, from 5.5 to 55 million tonnes from 1900 to 2000 compares therefore to a 3.8-fold increase in population, indicating that the increase in economic prosperity per head was of the order of 2.7-fold. The effects of population and economic growth in the projection to 2050 are in similar relative proportion. What the table does not show is the recent (since 1990) decline in market share for natural fibres, both cotton and wool.

Cotton is, of course, chemically a cellulosic fibre, but is never classified with the man-made cellulosics. It is, however, their main competitor, and the future level of production of cotton is crucial to the size of the total cellulosic market. Table 10.3 shows the world production of cotton together

Table 10.3 World cotton production and yields per hectare

	Production (million tonnes)	Area (million ha)	Yield (kg ha^{-1})
1930	5.5	33.1	0.20
1940	6.2	33.1	0.20
1950	5.8	30.2	0.25
1960	10.1	32.7	0.31
1970	11.2	32.3	0.38
1980	14.2	33.4	0.43
1990	18.7	32.1	0.56
2000 est	19.7	34	0.58

with the acreage planted, and hence the yield per unit area, from 1930 to 2000.

During the 1990s the actual production varied between 18.0 and 20.4 million tonnes (cotton is subject to the vagaries of the weather, pest attack, other infections), but the area has remained under 34 million hectares and the yield, using a 10-year moving average to smooth out variations, seems to be asymptotically approaching 0.60 kg ha^{-1}.

The importance of this is that most of the cellulosic fibre produced shares with cotton the property of being hydrophilic (moisture absorbing), which makes it the fibre of choice for garments or household uses which are used in contact with the skin. All current synthetic fibres by contrast are not at all hydrophilic, although ironically, for extreme conditions, athletes and other sports players have discovered that polypropylene (the least hydrophilic) makes the best inner layer as it quickly wicks away large amounts of excess sweat. *[Even babies have discovered the effect: disposable diapers used to have absorbent covers but now use polypropylene nonwovens. Ed.]*

A world population of 6.2 billion using 20 million tonnes of cotton and 2 million tonnes of relevant cellulosic fibres implies a use per head of 3.5 kg of hydrophilic fibre. Almost doubling this population implies the need for about another 20 million tonnes of hydrophilic fibre.

There are a limited number of candidates for this supply:

- Increase of cotton area – unlikely, in fact it is expected to decrease in China and India
- Spread of best practice – seems to have come to a halt
- More irrigation – more likely to be restricted (as in Turkey now)
- Yield increase by genetic modification – the wild card, impossible to forecast

- A new hydrophilic fibre – a polyester variant (possible), or fibres based on lactic acid for example
- Increase in viscose/rayon capacity – the industry expects pollution constraints to prevent this
- Increase in lyocell capacity – possible, but hardly at the scale needed
- A new cellulosic fibre variant – fibrils grown by bacteria???

In all, while it seems unlikely that all of the extra requirement for hydrophilic fibre can be met by new cellulosic fibre capacity, it is probable that the rundown of production over the last two or three decades of the 20th century will be reversed in the early decades of the new century. Even so a review of 150 years of fibre demand can be summed up by observing that while our one billion or so grandparents wore only natural fibres (80% cotton) our 10 billion grandchildren will wear predominantly synthetic fibres (mostly polyester).

10.3 Breakdown by fibre type

World capacity and production data are available for the following types of cellulosic fibre:

- Viscose; staple, textile filament, and high tenacity (HT) filament. Some capacity breakdown by regular, modal and polynosic is available, see Table 10.4 below
- Acetate; tow (for cigarette filters in the main), textile filament. Some capacity breakdown by di- and triacetate, and cupro, is available

Table 10.4 World cellulosic fibre capacities (kilotonnes per annum)

	1985	1990	1995	2000	2001
Viscose					
Staple	2395	2195	2190	2400	2350
Textile fil	465	495	395	390	390
HT fil	320	260	150	105	105
Acetate					
Tow	415	500	600	700	690
Textile fil	285	275	275	220	215
Cupro	40	40	35	30	30
Lyocell					
Staple	0	c2	c20	c100	c100
Filament	0	0	0.5	(0.5)	(0.5)

Table 10.5 World cellulosic fibre production (kilotonnes per annum)

	1980	1985	1990	1995	1998
Viscose					
Staple	2085	1960	1910	1740	1590
Textile fil	405	390	370	340	300
HT fil	290	275	185	85	80
Acetate					
Tow	335	350	465	555	585
Textile fil	330	240	245	205	155
Cupro	30	30	30	30	25
Lyocell	—	—	—	Not declared	Not declared

- Lyocell; staple (filament only at a pilot plant stage, and staple capacity data only).

Acetate tow capacity has increased throughout and viscose capacity is fairly constant. For the other variants, however, the picture is one of steady decline. This is confirmed in Table 10.5, where even acetate tow growth has begun to falter (1999 preliminary data suggests that some capacity cutbacks will occur).

10.4 Breakdown by main area

Market data for these fibres is difficult to come by on a comprehensive basis, and the following data is based on production data. In the main, there is not a lot of trade at the fibre stage between major blocs, but it can be considerable within blocs. For instance, Turkey is a major textile area but has no cellulosic fibre capacity. Lyocell, being a new fibre, is another exception, and is omitted from Table 10.6.

Interbloc trade in fabrics, however, can be considerable (e.g. in lining fabrics from Asia to Europe), and trade in apparel items can be huge. It is not possible to track trade in apparel items by fibre content, although some claim to do so using vast arrays of factors.

10.4.1 Capacity by the main producers

Table 10.7 shows the 1999 capacity for each fibre for the main producers worldwide, with an indication of fibre variants for each.

Table 10.6 Cellulosic fibre production by bloc (kilotonnes per annum)

	1980	1985	1990	1995	1998
Viscose staple					
W Europe	505	365	365	360	340
E Europe	725	710	530	140	75
Americas	280	220	220	180	125
Asia	565	650	780	1050	1040
Others	10	15	15	10	10
World	2085	1960	1910	1740	1590
The surge in Asia has mainly been in India and Indonesia, with growth also in China. The decline in East Europe is particularly striking.					
Viscose textile filament					
W Europe	75	70	65	70	65
E Europe	150	150	115	75	55
Americas	30	25	25	25	15
Asia	140	135	155	160	160
Others	10	10	10	10	5
World	405	390	370	340	300
The 1999 figures (not yet finalised) showed a continuing severe drop in European production.					
Viscose HT filament					
W Europe	90	80	70	55	50
E Europe	150	155	95	10	15
Americas	25	20	10	5	2
Asia	25	20	10	15	13
Others	0	0	0	0	0
World	290	275	185	85	80
Again a striking fall in East Europe. This product depends on the continuance of unrestricted speed limits on German autobahns.					
Acetate tow					
W Europe	70	80	115	130	135
E Europe	5	10	5	0	5
Americas	220	215	275	305	305
Asia	40	45	70	120	140
Others	0	0	0	0	0
World	335	350	465	555	585
Recent growth has been in Asia, where, however, some progress is being made with acceptable (to smokers that is) cheaper polypropylene filters.					
Acetate and cupro textile filament					
W Europe	70	50	50	45	45
E Europe	55	60	55	10	10
Americas	175	105	110	115	75
Asia	60	55	60	65	50
Others	0	0	0	0	0
World	360	270	275	235	180
1999 was another difficult year, according to preliminary figures.					

Table 10.7 Cellulosic fibre; 1999 capacity by main owner (kilotonnes per annum)

Main firm (%)	Viscose staple	Viscose filament	Acetate tow	Acetate/Cu filament	Lyocell textile
Top 10 firms have 75% of world capacity					
China (15)	480	118			
	(many plants, some of poor environmental record)				
Birla (12)	408	43			0.15
	(world no 1 as a company)				
Acordis (10)	169	69	38	33	c80
	(widest spread of products, plants in USA & Europe)				
Lenzing (8)	315				c20
	(plants in Europe, America and Asia, over 30 ktonnes of modal viscose)				
Celanese (8)			224	90	
	(USA, Canada, Belgium & China, 16 ktonnes of filament closed end of 1999)				
Eastman (6)			196	20	
	(USA, trade talk of closures due, but possibly not in fibres)				
Russia (5)	157	44		5	
	(many plants producing hardly any volume)				
RGM (4)	170				
	(plants in Finland and Indonesia, now spun off by APRIL)				
FCFC (4)	162				0.4
	(plants in lyocell)				
Rhodia (3)			106		
Other companies					
Daicel (plant in China) (2)			85		
SIV (1)	47	8			
MRC (1)			33	21	
Vicunha (1)	44	5			

Table 10.7 (cont.)

Main firm (%)	Viscose staple	Viscose filament	Acetate tow	Acetate/Cu filament	Lyocell textile
Asahi (1)		16		29 (cupro)	
Toho (1)	41 (polynosic)				
Chemapol (1)	38				
Fuji (1)	35 (polynosic)				
Banesto (1)	32				
Kohjin (1)	31				
Jilin (1)		31			
Daiwabo (1)	30				
Svenska (1)	26				
Bosnia (1)	26				
Gruppe (1)		24			
Omikenshi (1)	22				
Kabool (1)	20				
Firms with under 0.5% of world capacity each					
Toyobo	18				
Ukraine		18			
Sunkyong			10	8	
Belarus		18			
Goenka		16			
Martis	15				
Lithuania				15	
Serbia	10	3			
Impressa	12				
Teijin				12	
G Veneto		11			
Kuraray		11			
Inacsa				10	
Hindaya	7	4			
LSB		10			

Table 10.7 (cont.)

Main firm (%)	Viscose staple	Viscose filament	Acetate tow	Acetate/Cu filament	Lyocell textile
Yunica				9	
Etma		7			
Shriram		7			
Abranov				7	
Cydsa		6			
Snia		6			
MISR	5				
Bulgaria		5			
CI	5				
Locals		5			
Beaulieu		5			
Travancore		4			
Poland		4			
Slovakia		4			
Uzbekistan				3	
Bemberg				3 (cupro)	
CMMF		3			
ESCO		3			
Sirsilk				2	
Industrias		2			
CTMTC		1			
Possible new lyocell entrants?					
TITK					0.11
Hanil					0.01
World total, 3888 kilotonnes per annum (100)					

10.5 Capacity and production trends, 1980–2010

Although there is overcapacity in cellulosic fibre, it is not nearly as severe as for polyester. However, its impact will be more deeply felt because there is not the underlying growth in demand to eventually absorb it. Long term growth in viscose/lyocell staple should eventually return, and possibly could be dramatic after 2010. For filament, however, the long decline looks set to continue, although it appears that cellulosic will always be the material of choice for linings, cost apart. Thus polyester will take the commodity clothing lining business, leaving acetate and viscose in higher quality garments, where they might be joined by filament lyocell. The fashion business will provide periodic booms for these fibres. Acetate tow seems likely to be less attractive, as smoking continues to be discouraged by authorities around

the world, and polypropylene provides low cost competition. HT filament demand has become a small niche associated with performance sports cars and the continuance of unrestricted speeds on German motorways. *[There are some signs of an upturn in the fortunes for tyre-yarn associated with the development of run-flat tyres for which rayon seems ideally suited. Ed.]*

10.6 Trends in markets by end-use

This section is heavily dependant on West European data (see Table 10.8), where a great deal of effort has been put into market analysis by end-use. Somewhat coarser data is available for the USA, and a little for Japan. The European data has probably been maintained for longer than the continually eroded resources for market research could cope, and has now been cut back in scope. This section compares the years of 1990 and 1996, and attempts to draw broad conclusions about the implications worldwide. More recently industrialising countries, such as China, are and will be able to leapfrog European experience – for instance they will start with heat

Table 10.8 West European fibres by spinning route

	Cellulosic	Polyester	Acrylic	Cotton	Others
Cotton spinning (ktonnes)					
1990	186	199	120	1070	25
1996	134	154	92	1042	24
(%)					
1990	12	12	8	67	2
1996	9	11	6	72	2
Woollen spinning (ktonnes)					
1990	25	48	56	47	361
1996	22	45	60	42	380
(%)					
1990	4.7	9	10	9	67
1996	4.0	8	11	8	69
Worsted spinning (ktonnes)					
1990	13	32	221	2	231
1996	11	37	188	1	254
(%)					
1990	2.6	6	44	0	46
1996	2.2	8	38	0	52
All spinning (ktonnes)					
1990	224	279	397	1119	617
1996	167	236	340	1085	658
(%)					
1990	8.5	11	15	42	23
1996	6.7	9	14	44	26

Table 10.9 West European unspun fibre market

	Cellulosic	Polyester	Acrylic	Cotton	Others
For apparel (ktonnes)					
1990	na	na	na	na	na
1996	5	49	4	2	11
(%)					
1990	na	na	na	na	na
1996	7	69	6	3	15
For household uses (ktonnes)					
1990	na	na	na	na	na
1996	21	172	4	17	160
(%)					
1990	na	na	na	na	na
1996	5.6	46	1	5	43
Other uses (ktonnes)					
1990	na	na	na	na	na
1996	146	93	4	61	190
(%)					
1990	na	na	na	na	na
1996	30	19	1	12	38
All unspun (ktonnes)					
1990	160	241	31	46	284
1996	172	314	12	80	361
(%)					
1990	21	32	4	6	37
1996	18	33	1	9	38

bonded polypropylene nonwovens without the preliminary latex bonded viscose products used in Europe in the 1960s and 1970s.

During the period 1990 to 1996 the total spinning market declined by almost 6% (cotton spinning by 10%) and the use of cellulosic (only viscose in spun yarn) fibre by 25% (28% in cotton spinning). Wool is, of course, the main component in 'others' in woollen and worsted spinning. Open end spinning accounted for 27% of the viscose spun in 1996, compared to 16% for polyester, 9% for acrylic, 14% for cotton.

Table 10.9 gives data for the market for unspun fibre for 1990 and 1996.

During this period the total unspun market, in contrast to the spinning market, grew by over 23% and the use of cellulosic (both viscose and acetate tow) fibre by 7.5%, although its share dropped 3%, to 18%. Acetate tow is in the 'other uses' section above, and polypropylene is of course the main component in the 'others' column. Unfortunately a change in methodology by the industry prevents the 1990 data being displayed by broad end-use sector in the same format as for 1996.

Table 10.10 gives data for the market structure for synthetic staple fibre for the same years.

Table 10.10 West European synthetic staple fibre market (spun and unspun)

	Cellulosic	Polyester	Acrylic	Total	Decline
Production (ktonnes)					
1990	404	470	664	2405	
1996	473	459	681	2596	8%
(%)					
1990	17	20	28	100	
1996	18	18	26	100	
Imports (ktonnes)					
1990	256	377	247	1393	
1996	254	426	214	1423	–2%
(%)					
1990	18	27	18	100	
1996	18	30	15	100	
Exports (ktonnes)					
1990	269	313	505	1581	
1996	399	351	566	1550	2%
(%)					
1990	17	20	32	100	
1996	26	23	37	100	
Net imports (ktonnes)					
1990	–13	65	–258	–188	
1996	–145	75	–352	–127	33%
Consumption (ktonnes)					
1990	390	535	406	2217	
1996	328	534	329	2469	–11
(%)					
1990	18	24	18	100	
1996	13	22	13	100	

During this period the total market for synthetic staple in Europe declined by 11%, with local production falling by 8% and net imports rising by a third. Although cellulosic production is shown growing strongly, this is because of the inclusion of Finland and Sweden in the figures in 1996, by which time the European Community had been enlarged (Austria had been incorporated for some time). For consumption data (in this and the above tables) this change makes little difference because of the tiny textile industries in Scandinavia. The fibres omitted (derivable *in toto* by difference) are nylon and polypropylene, neither of which compete with cellulosic staple, in the main (the latter does compete with acetate cigarette filters, in China).

Table 10.11 shows data for the market structure for yarn (both spun and synthetic filament).

During the period 1990–1996 the total market for yarn in Europe grew by 2.4% (3841–3922 ktonnes), with local production rising by 1.3%

Table 10.11 West European yarn market (spun and filament)

	Cellulosic filament	Synthetic filament	Cellulosic staple	Synthetic staple	Cotton
Production (ktonnes)					
1990	177	1081	215	843	865
1996	161	1155	159	741	942
(%)					
1990	5.0	30	6.1	24	24
1996	4.5	32	4.4	21	26
Imports (ktonnes)					
1990	135	819	83	196	475
1996	127	1056	89	329	536
(%)					
1990	7.6	46	4.7	11	27
1996	5.9	49	4.1	11	25
Exports (ktonnes)					
1990	140	791	68	187	230
1996	135	940	73	221	352
(%)					
1990	9.4	53	4.6	13	15
1996	7.4	52	4.0	12	19
Net imports (ktonnes)					
1990	–5	28	15	9	246
1996	–8	116	16	18	184
Consumption (ktonnes)					
1990	172	1109	230	852	1110
1996	153	1271	176	758	1126
(%)					
1990	4.5	29	6.0	22	29
1996	3.9	32	4.5	19	29

(3554–3600 ktonnes) and net imports rising by 17% (277–322 ktonnes). Cellulosic filament consumption has fallen from 172 to 153 ktonnes, about a single percentage point loss of share. In 1999, as this book was being prepared, cellulosic filament suffered further dramatic losses in its share worldwide, in the face of competition from cheap polyester following the 1997 Far East financial crisis. Cellulosic staple lost a similar share, falling from 230 to 176 ktonnes, but was not to be further hit by the after effects of the financial crisis in the Far East.

The fibre omitted is wool, which does not compete to any significant extent with cellulosics. In all this end-use data it should be remembered that, as is normal in fibre statistics of this nature, some natural fibres are omitted – mainly jute, sisal, kenaf, coir, flax (linen), ramie, silk and the like.

Table 10.12 gives data for the yarn market by end-use.

Table 10.12 West European yarn market (spun and filament)

	Cellulosic filament	Synthetic filament	Cellulosic staple	Synthetic staple	Cotton
WEAVING					
Weaving, linings (ktonnes) (total market decline 12%)					
1990	48	35	6	2	4
1996	38	35	4	2	3
(%)					
1990	51	37	6	2	4
1996	47	43	5	2	4
Weaving, other apparel (ktonnes) (total market decline 11%)					
1990	27	111	102	167	448
1996	33	105	79	139	368
(%)					
1990	2.6	11	9.8	16	43
1996	3.5	11	8.6	15	40
Weaving, household (ktonnes) (total market decline 8%)					
1990	10	66	56	143	364
1996	8	77	41	127	331
(%)					
1990	1.5	10	8.6	22	55
1996	1.3	13	6.7	21	54
Weaving, industrial (ktonnes) (total market growth 7%)					
1990	51	159	11	27	91
1996	43	207	9	31	71
(%)					
1990	15	47	3.3	8	27
1996	12	57	2.5	9	20
All weaving (ktonnes) (total market decline 7%)					
1990	136	370	175	338	906
1996	122	424	133	299	774
(%)					
1990	6.4	17	8.2	16	43
1996	6.2	22	6.7	15	39
KNITTING					
Warp knitting (ktonnes) (total market growth 8%)					
1990	11	134	4	19	22
1996	11	153	4	24	13
(%)					
1990	5.5	70	2.3	10	12
1996	5.1	74	2.1	12	6
Weft knitting, apparel (ktonnes) (total market growth 5%)					
1990	7	206	24	267	284
1996	15	225	26	256	285
(%)					
1990	0.8	23	2.7	30	32
1996	1.6	24	2.8	28	31
Weft knitting, household (ktonnes) (total market growth 52%)					
1990	0	7	1	3	6
1996	0	15	3	4	5
(%)					
1990	0	39	6.3	18	34
1996	0	56	9.4	14	18

Table 10.12 (cont.)

	Cellulosic filament	Synthetic filament	Cellulosic staple	Synthetic staple	Cotton
Weft knitting, industrial (ktonnes) (total market growth 28%)					
1990	0	9	2	3	14
1996	0	14	3	6	13
(%)					
1990	0	32	8	12	49
1996	0	38	9	18	35
All knitting (ktonnes) (total market growth 6%)					
1990	18	355	32	292	326
1996	25	406	36	290	316
(%)					
1990	1.6	32	2.8	26	29
1996	2.1	34	3.0	24	27
ALL OTHER PROCESSES					
Narrow fabrics (ktonnes) (total market growth 11%)					
1990	3	25	2	3	13
1996	3	33	3	4	9
(%)					
1990	7.2	55	3.5	7	27
1996	5.7	65	5.5	7	17
Carpets (ktonnes) (total market growth 6%)					
1990	0	242	2	172	9
1996	0	304	1	150	9
(%)					
1990	0	48	0.3	34	2
1996	0	57	0.3	28	2
Hand knitting, household (ktonnes) (total market decline 49%)					
1990	1	0	1	37	6
1996	1	2	0	13	5
(%)					
1990	1.6	1	1.1	65	10
1996	1.7	6	1.0	44	16
Miscellaneous (ktonnes) (total market decline 13%)					
1990	3	83	6	26	29
1996	1	80	3	15	28
(%)					
1990	1.8	56	4.3	18	20
1996	1.0	62	2.2	12	21
All other processes (ktonnes) (total market decline 23%)					
1990	4	83	7	63	34
1996	2	82	3	28	32
(%)					
1990	1.8	41	3.4	31	17
1996	1.1	52	2.0	18	20
All yarn markets (ktonnes) (total market decline 2.4%)					
1990	161	1076	218	869	1287
1996	152	1249	176	771	1140
(%)					
1990	4.0	27	5.4	22	32
1996	3.9	32	4.5	20	29

Table 10.12 illustrates well the niches where cellulosic fibres thrive – linings (50% cellulosic), non-melting reinforcement fabrics (10–15% cellulosic), warp knitting and narrow fabrics (5–7% cellulosic). Overall cellulosic fibre has about 4% of the European market for yarns. The overall decline is in part caused by the general decline in upstream activity in Europe as the retail sector switches to imports from Asia, and in part by the continuing gain by synthetics, especially polyester.

How relevant is this Western European market breakdown to the markets in other areas? It is probable that in most areas there will be a similar pattern, if only because in the main textile producing areas much of the downstream industry is producing for West Europe and North America. East Europe is a special case: their fibre portfolio was frozen some decades ago as the lack of investment in civilian projects caused them to remain overcommitted to cellulosic (basically a pre-World War II version of the fibre) and later to nylon. The polyester revolution that swept Asia from the 1970s just passed them by.