Overview on establishing flax industry

BLUE CRANE DEVELOPMENT AGENCY
SOMERSET EAST

MSM-Fibre & Textiles Competency Area
Mr Sunshine Blouw (RGL)
13 February 2007
MSM – Fibre & Textile Competency Area
Vision and Mission Statements

“A world-class Centre of Excellence for the establishment of globally competitive fibre industries”

“To develop cutting-edge technologies, expertise and innovative solutions for the fibre industry”
Agronomic overview

- Flax require moderate winter climate with temp. not less than 3°C
- Cultivated in wide range of soils
- Water requirements of between 250 – 300mm on ripening
- Fertiliser needed is lower than most cash crops
- 2006 flax seed price = **Euro 1.23/kg**
- The life cycle of the flax plant consists of a 45 to 60 day vegetative period, a 15 to 25 day flowering period and a maturation period of 30 to 40 days.
The Flax Plant

• The stem of the flax plant contains
  • Fibrous outer layer (bast fibre)
  • Woody inner part (the shive)
  • Seeds

• The international norm of flax straw yields is around 6-7 tonnes per hectare.
• Fibre content ranges from 8% to 30% depending on the variety sown, growing and retting conditions
• Fibre extraction process is mainly mechanical
Technology required during cultivation – harvesting (choice between labour intensive & mechanization)

- Planter
- Picking machine
- Flax turner
- Baler
- Swathing machine

BEST FARMING MANAGEMENT PRACTICES
Primary Fibre Processing Technologies

- Fibre separation by decortication process
  - Long fibres
  - Short
  - Shives / woody core
Flax fibre refining processes

Hackling Unit

Flax opening & cottonization
Prices of main products and by-products of flax

<table>
<thead>
<tr>
<th>Long fibre</th>
<th>Water-retted</th>
<th>Dew-retted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>Price Euro/tonne</td>
<td>Price Euro/tonne</td>
</tr>
<tr>
<td>Lower</td>
<td>2 231.00</td>
<td>1 983.15</td>
</tr>
<tr>
<td>Medium</td>
<td>2 602.88</td>
<td>2 231.04</td>
</tr>
<tr>
<td>Very good</td>
<td>2 726.83</td>
<td>2 850.78</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Short fibre</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>247.89</td>
</tr>
<tr>
<td>Higher</td>
<td>371.84</td>
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</table>

<table>
<thead>
<tr>
<th>by-products</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>wasted parts of the straw-dew retted</td>
<td>30.99</td>
</tr>
<tr>
<td>wasted parts of the straw price</td>
<td>37.18</td>
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<tr>
<td>by-products from deseeding</td>
<td>24.79</td>
</tr>
<tr>
<td>short scutched fibre waste</td>
<td>99.16</td>
</tr>
<tr>
<td>shives used for particleboard prodn</td>
<td>26</td>
</tr>
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</table>

Source: Vlas Berichten, the newspaper of the Algemeen Belgisch Vlasverbond, issue No:14; July 12, 2002 (Belgium).
Uses of the long fibre, tow and shive

- Long fibre
  - Linen

- Tow (short fibres)
  - Composite materials
  - Geotextiles
  - Insulation
  - Specialty papers

- Shive (woody byproduct)
  - Bedding
  - Filler
## Local market

### SA IMPORTS FOR FLAX

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<tr>
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<tbody>
<tr>
<td></td>
<td>KG</td>
<td>R(FOB)</td>
<td>KG</td>
<td>R(FOB)</td>
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<tr>
<td><strong>FIBRE:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Raw or retted</td>
<td>15220</td>
<td>133196</td>
<td>130880</td>
<td>854974</td>
</tr>
<tr>
<td>Other (not broken or scratched)</td>
<td>6372</td>
<td>332322</td>
<td>129311</td>
<td>5062309</td>
</tr>
<tr>
<td>Tow &amp; waste</td>
<td>1045</td>
<td>38211</td>
<td>1007</td>
<td>0</td>
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<tr>
<td></td>
<td>7417</td>
<td>19434</td>
<td>130893</td>
<td>854974</td>
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<tr>
<td><strong>YARN:</strong></td>
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<tr>
<td>Single</td>
<td>3115</td>
<td>155202</td>
<td>10382</td>
<td>22977</td>
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<tr>
<td>Multiple (folded) or cabled</td>
<td>64729</td>
<td>2558920</td>
<td>61368</td>
<td>92603</td>
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<tr>
<td></td>
<td>67844</td>
<td>71750</td>
<td>115580</td>
<td>150220</td>
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<tr>
<td><strong>FABRIC:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;85% flax, unbleach/bleached</td>
<td>2488</td>
<td>410173</td>
<td>12454</td>
<td>1907558</td>
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<tr>
<td>&gt;85% flax, other</td>
<td>91676</td>
<td>4812328</td>
<td>41395</td>
<td>3279175</td>
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<tr>
<td>&lt;85% flax, unbleach/bleached</td>
<td>4719</td>
<td>343068</td>
<td>7409</td>
<td>859424</td>
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<tr>
<td>&lt;85% flax, other</td>
<td>269111</td>
<td>8544611</td>
<td>157012</td>
<td>7979711</td>
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<tr>
<td></td>
<td>367994</td>
<td>218270</td>
<td>390798</td>
<td>417282</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>17194835</td>
<td>17805117</td>
<td>47939376</td>
<td>64432425</td>
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</table>
Markets

• Long fibre
  • Spinners and weavers mainly located in Asia (other Atlantis)

• Short fibre
  • Automotive suppliers
  • Ecological insulation manufacturers
  • Pulp and paper mills
  • Cottonized fibre

• Market value depends on:
  • Length, strength, fineness, colour, freedom from shives and consistency
FLAX PRODUCT DEVELOPMENT ROUTE

STALKS

“modern route”

decortication

“traditional route”

water retting

decortication

scutching

Hurds

Bast Fibre

carding

refining

Carding

Coarse

fibre

physical/chemical

processing, e.g.

steam explosion

ultrasound

Cooking /extraction

refining

Fine fibre

Long Fibre

heckling

spinning

Tow

• long-fibre textiles

• cordage

• paper

Press-molded automotive interior panels

Geotextiles

Needle-punched carpeting

Pulp for:

• Commodity papers

• Technical papers

• Cigarette papers

Animal bedding

Building materials

Textiles for clothing from cottonised fibre

Fiberglass substitute in FGP mats for thermal insulation in construction

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Product Development - Apparel
Natural fibre re-inforced composite

According to a soon-to-be-released study from Business Communications Company, Inc. (www.bccresearch.com) RP-178 Composites: Resins, Fillers, Reinforcements, Natural Fibers and Nanocomposites, the fibre-reinforced plastic market is estimated at almost 2.3 billion pounds in 2002. It is expected to increase to slightly over 2.6 billion by 2007, as the market grows at an AAGR (average annual growth rate) of 3.0% through 2007.
Challenges

• Development of economic viable models
• Human capacity development
• Local and overseas markets
Thank you ........

Questions / Clarification !!!!!