Effluent Treatment

**Produced for the CRC for Premium Quality Wool undergraduate program by;
Dr. Jock Christoe, CSIRO Textile and Fibre Technology.**

CRC

for

Premium

Quality

Wool

Effluent Characteristics

- **Wool wax**   **0.4 - 1.0 %**

- **Suint**   **0.4 - 0.6 %**

- **Dirt**   **0.4 - 1.2 %**

- **Detergent**   **0.04 - 0.06%**

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Environmental Concerns

- **Organic load (mainly wax)**
  - **1 scour = 30,000 people**

- **Biorefractory nature of wax**
  - **doesn't degrade easily**

- **Pesticide residues**
  - **within limits in Australia**

- **Detergent residues**
  - **biodegradable alternatives available**

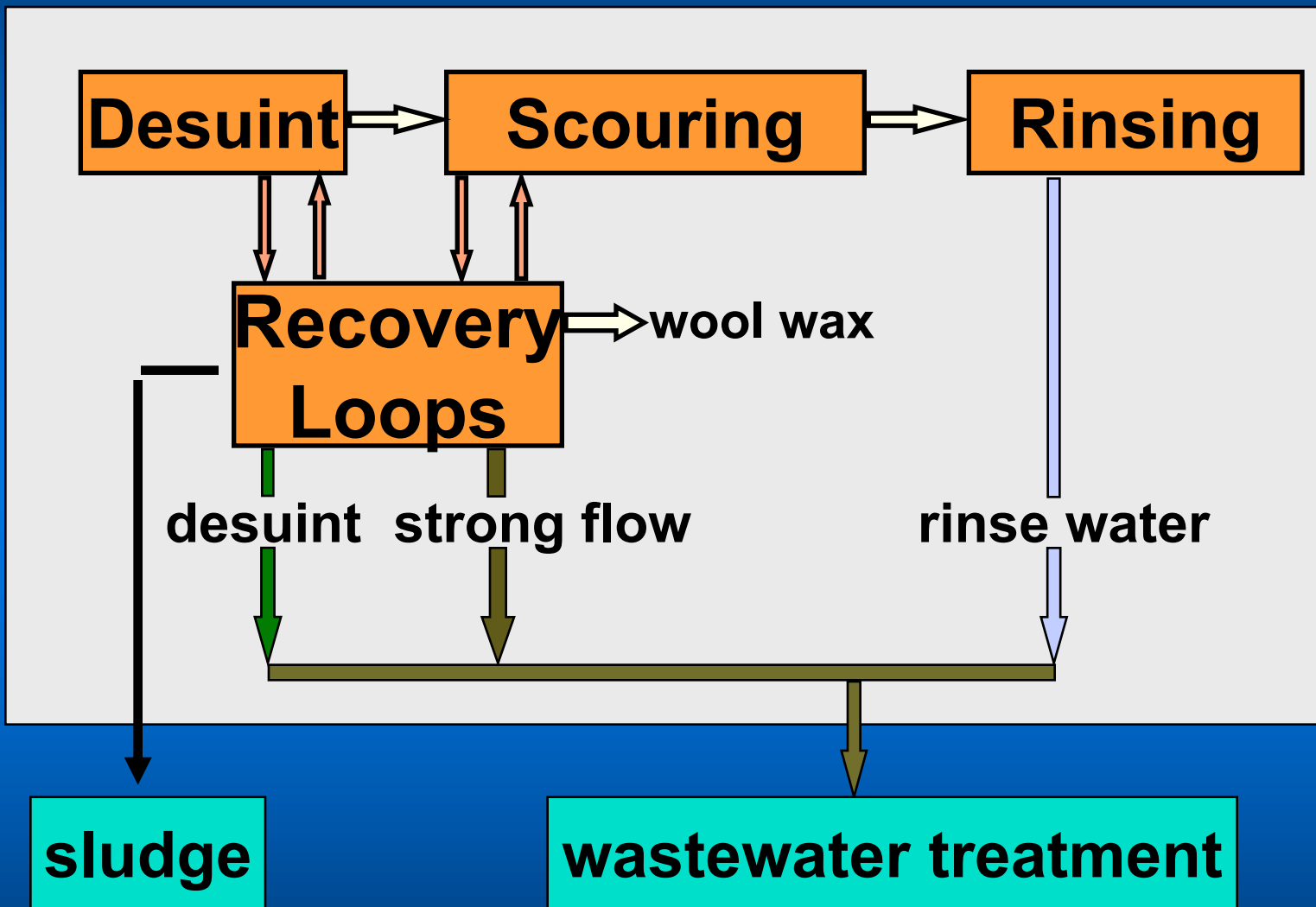- **Potassium levels**
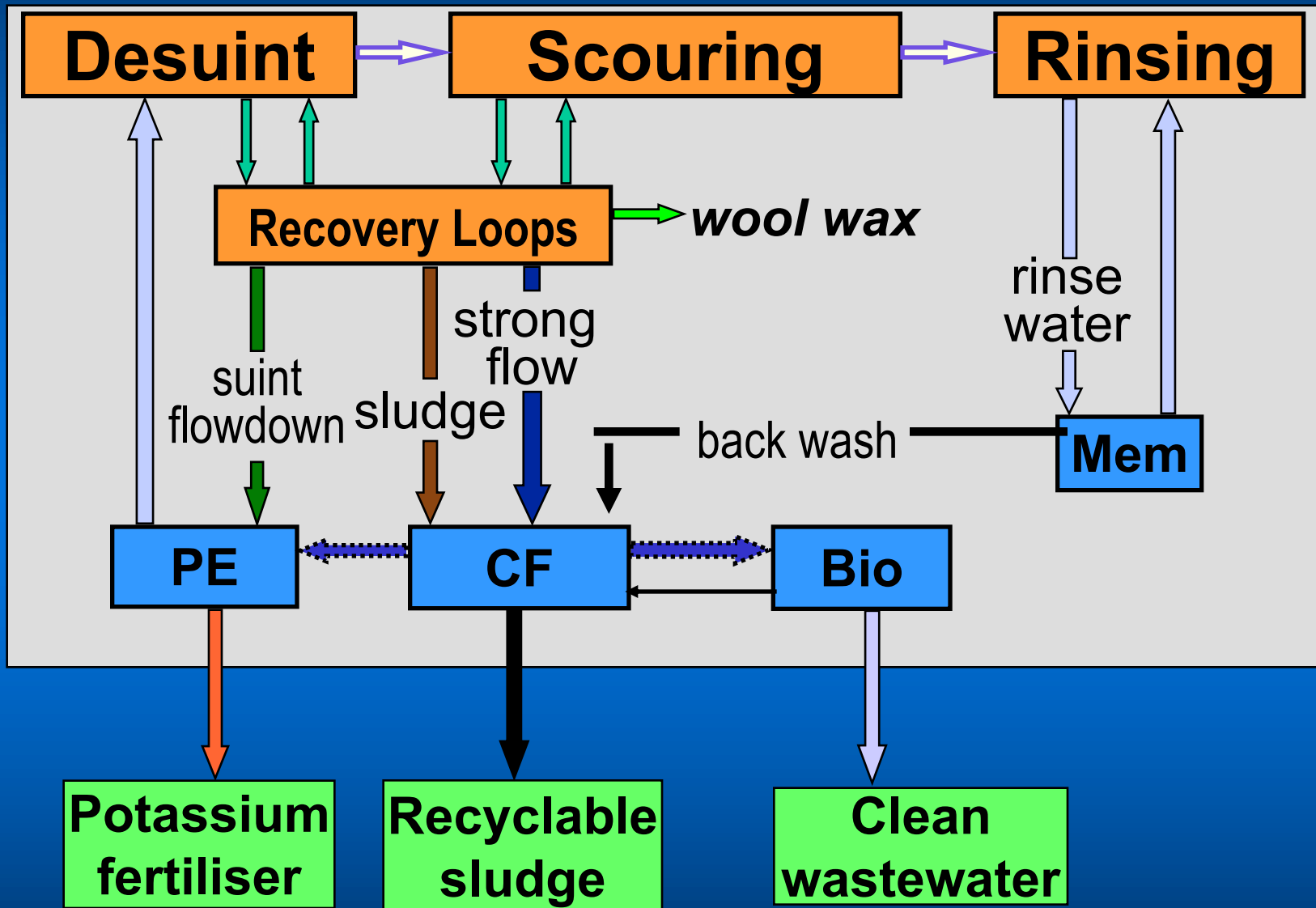 - **potential source of fertiliser**

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Conventional Approach

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Sirolan -SWIMS

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Features of SWIMS

- **Resource rather than waste**
  - soil conditioning, nutrition
- **Integration with scouring process**
  - optimisation of return streams
- **Separation of waste streams**
  - technologies to suit content
- **One sludge**
- **Modular Configuration**
- **Flexibility**

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Sirolan CF

- **Commercialised module**

- **Strong flow treatment**

- **Chemical flocculation**
  - **in-line process**
  - **pH control**
  - **polymeric flocculent**

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Typical Results for Sirolan CF

	Concentration (%)				BOD
	TS	SE	PS	SS	(mg/l)
Feed	4.8	1.0	3.1	3.5	11000
Centrate	1.1	0.04	0.13	0.03	2800
Sludge	60.0	18.0	42.0		
Efficiency (%)		96	96	99	75

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Benefits of Sirolan CF

- **Simplicity**
  - **in-line process**
  - **only one sludge**

- **Flocculent**
  - **no Fe and Al cations**

- **Sludge characteristics**
  - **60% solid**

- **Footprint**
  - **small**

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