

Mediteranean

Clean Propre Limpio


No. 35

Examples of waste and emission minimisation initiatives

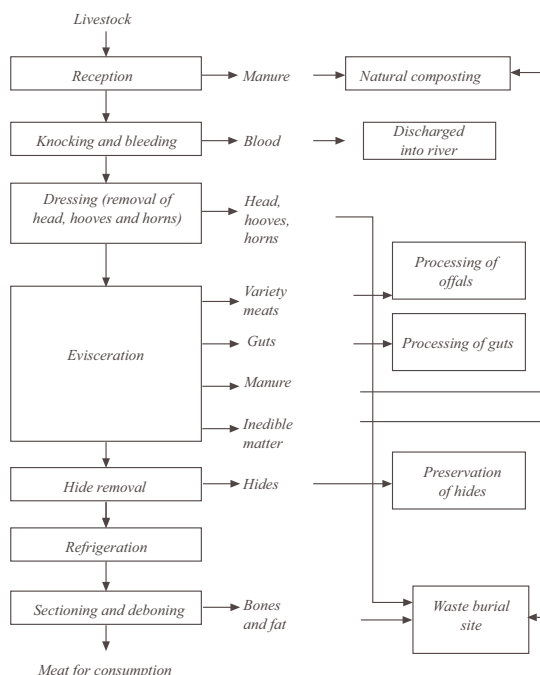
Cleaner production in a small abattoir

Company	Sahbaz is a small abattoir located in Semizovac (Bosnia and Herzegovina) employing six people. Slaughtering procedures are semi-automated. Carcasses are sectioned and de-boned in the plant, with the meat sold at three sales points. Sahbaz also offers meat products, e.g. steaks, roasts, mince, smoked meats, cevapcici, sausages, etc.
Industrial sector	Food industry. Meat processing.
Environmental considerations	The principal environmental problems associated with meat processing are high water consumption and the discharge of concentrated effluent containing blood, fat, manure, undigested stomach contents, meat and meat extracts, impurities and cleaning agents. The wastewater produced by the plant is discharged into the river Bosna after passing through septic tanks which do not process the effluent in satisfactory fashion.
Background	The actions implemented and recommended modifications are primarily designed to eliminate organic pollution from wastewater and to reduce water consumption.
Summary of actions	<p>Process modifications:</p> <ol style="list-style-type: none"> 1. Extension of bleeding time to at least 7 minutes, which will significantly reduce effluent load. 2. Construction of a blood collection system to replace manual collection, with separation of blood from wastewater. 3. Introduction of a controlled manure composting system in replacement of the current process whereby manure is disposed of on the riverbank. <p>Equipment modifications:</p> <ol style="list-style-type: none"> 1. Installation of buses on pipelines: Using suitable pipes, buses and sprinkler systems to clean floors and surfaces more efficiently and reduce at extraction from the surface of carcasses. 2. Fitting discharge pipes with traps/filters to prevent solid matter from entering effluent stream. <p>Best environmental practices:</p> <ol style="list-style-type: none"> 1. Keeping work areas clean and tidy to prevent accidents. 2. Improving stock management and monitoring consumables to avoid waste. 3. Training employees in best practices for cleaning and saving water. 4. Livestock reception stage: avoid feeding animals before slaughter, recycling relatively clean residual water produced by refrigeration systems for cleaning floors of pens and trucks, dry cleaning of livestock enclosures prior to wet cleaning, etc.

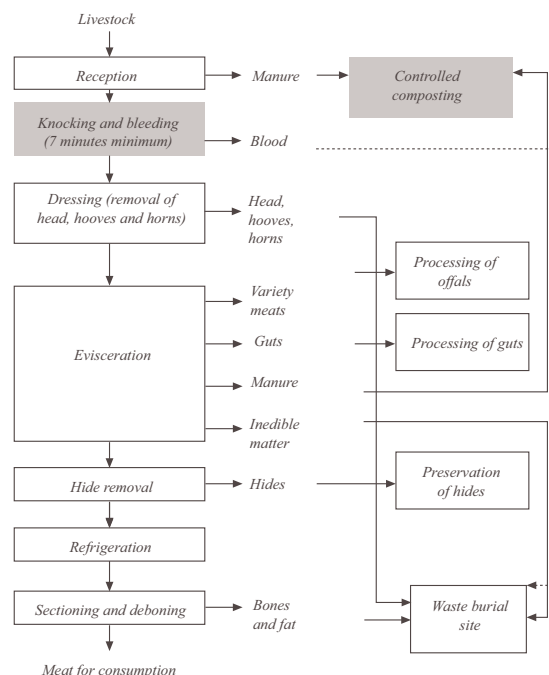
- 5. Removal of hides and dressing:** monitoring consumption of salt.
- 6. Cleaning:** always dry clean before wet clean, clean floors at a maximum angle of 60° with cold rinse beforehand, regular control of sprinkler buses, etc.

Diagrams

OLD PROCESS



NEW PROCESS



Balances

	Before	After
Water consumption	1,831 m ³ /year	1,557 m ³ /year
Salt consumption	3 t/year	1.2 t/year
DBO ₅	3,520 mg O ₂ /l	2,052 mg O ₂ /l
Equivalent population	362	240
Water expenditure	2,849.22 €/year	2,422.92 €/year
Salt expenditure	412.41 €/year	164.98 €/year
Septic tank emptying costs	378.08 €/year	192.48 €/year
Wastewater costs	312.78 €/year	247.46 €/year
Total annual costs	€3,952.49	€3,027.99
Annual savings		€924.50
Annual investment		€58.45
Payback period		< 1 month

Conclusions

Of the various measures proposed, the company decided to immediately implement those which required little or zero investment. As a result, water consumption has fallen by 15%, wastewater discharges by 34%, and salt consumption by 60%, which has brought the company annual savings of 924.50 euros. These savings derive merely from the implementation of just a few stopgap measures; the implementation of all the proposed measures will entail more significant reductions in pollution and bigger cost savings.

NOTE: This case study seeks only to illustrate a pollution prevention example and should not be taken as a general recommendation.

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