

Paper Mill Production Problem

A paper mill sells rolls of paper to newspaper companies. These newspaper companies place orders for rolls of different widths. The mill has just received a large order for:

650 rolls of 4ft-wide paper,
2430 rolls of 9ft wide paper and,
1470 rolls 19ft wide paper.

The mill produces rolls of two sizes: 14ft wide, at a cost of £635 per roll, and 21ft wide, at a cost of £1,130 per roll. Large cutting machines are used to cut these rolls into the desired widths.

Objective:

- (1) The mill wants to know how many rolls (14ft and 21ft) they should produce, and how these should be cut to fulfil demand at minimum cost. Any leftovers after cutting 14ft and 21ft wide rolls are thrown away.
- (2) Discuss briefly the optimal solution
- (3) The mill is very concerned about the environment. Rather than minimizing the production cost, the mill wants to find the cheapest production plan that first minimizes waste and any potential overproduction. Discuss your new production plan.