Firewood quality control and standards

In the Quality Wood project current classification and quality of firewood and expectations for the CEN standards (particularly the prEN 14961) were surveyed based on a questionnaire to firewood producers or traders and their customers.

The main results of the study were as follows:

- Product specification should include the following information: producer, production date, tree species, volume or weight and moisture content.
- It is not very common to test the moisture content of firewood or use standards for firewood specification in the participating countries.
- In general, producers and traders view standards and specifications useful but the specification is not systematically documented for customers.
- Ensuring a good quality of firewood depends more on tradition and experience than systematic quality control.
- Most small firewood traders rely solely on visual inspection, which basically reveals obvious defects and mould only.
- Customers are interested in the following quality information: wood species, length, moisture content, volume in stacked-m³, origin, volume in loose-m³ and energy content.
- Good quality firewood (low moisture content, suitable particle size) is easy to burn, and thus diminishes harmful emissions, when appropriate combustion devises are used.
Professional production of quality firewood

Procurement of raw material
Proper harvesting of raw materials is the stepping stone for the good quality of firewood. If the first class chopped firewood is manufactured, no decayed trees should be harvested. Mechanized harvesting speeds up drying of stems but with professional manual harvesting good quality can be ensured as well. Long storing of harvested stems, particularly in late summer and fall, may deteriorate the quality of wood.

Manufacturing of firewood
Sawing-splitting processors enable chopping and splitting into exact dimensions, and cutting that leaves a smooth cutting surface. If manufacturing takes place at a terminal, processing of stems, drying, storing and packing of split firewood is easy. Quality can be further improved by conveying chopped wood logs through a rotating cylinder that separates loose bark and splinters from the standard dimensioned firewood. Drying of cleaned firewood is faster, because bark slows down the drying process. What kind of drying method is used determines the time of splitting and chopping. If seasoning, i.e. natural drying, is the main method, all manufacturing must take place in spring in order to ensure a proper drying period for firewood. Naturally this demands high efficiency and enough resources for all that work in a short period of time. If drying by cold or hot air is used, manufacturing can be done all year round according to actual demand. Only a small buffer quantity is required to satisfy urgent customers. Naturally the quality control is easier because only small batches are manufactured at the same time.

Storing of firewood
If all firewood is manufactured in a short time in spring, as most producers do, storing of large quantities of wood is a great challenge. Proper handling and storage facilities are worth the investment. After proper drying, wood logs are taken indoors for storage and packing if necessary. For packing, cages, nets, boxes and plastic wraps are successfully used. If packages are used they should be breathable to prevent air humidity from condensing on firewood. Good quality can be easily spoiled with leaving firewood at the mercy of the unpredictable weather.

Delivery
Careful delivery ensures that the good quality of chopped firewood remains for the customer. Whether firewood is delivered packed or in bulk, it should be protected from rain and dirt. Right handling units make it easier for the customer to unload and store the purchased firewood batch.

Proposal for European product standard for firewood
Quality Wood project has made a proposal to CEN/TC 335 for firewood product standard. This product standard is made to support the use of firewood in non-industrial situation and specifically for the domestic/householder market and smaller commercial boiler situations, where fuel quality is more sensitive issue. The proposal includes classes AI and AII for stoves and fireplaces and classes BI and BII for log wood boilers and quality requirements are based on Quality Wood study.