

# Reconstruction of farmer's life by analyzing construction timber in farmhouses in comparison to churches – first results



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## Introduction:

Within the project "Historical Wood Utilisation", traditional farmhouses in The Austrian Open Air Museum Stübing have been analysed. For this study, the focus has been set on the region Styria. 597 wooden elements from 36 farmhouses were compared to 412 wooden elements from 28 churches, to investigate the difference between a public house and a farmer's house from the 15<sup>th</sup> to the 20<sup>th</sup> century.

Dendrochronologically dated samples of construction timber have been examined according to wood species, century, altitude and purpose of the building.

## Results:

### Wood species

The dominating wood species over all categories has always been spruce. With the only exception that more than 90% of the construction timber in farmhouses which were built in an altitude over 1000m was made of larch wood. Nevertheless larch was hardly used in churches, even in higher altitudes. Looking more in detail, larch was mainly used for columns, back beams and in wall construction (fig. 1).

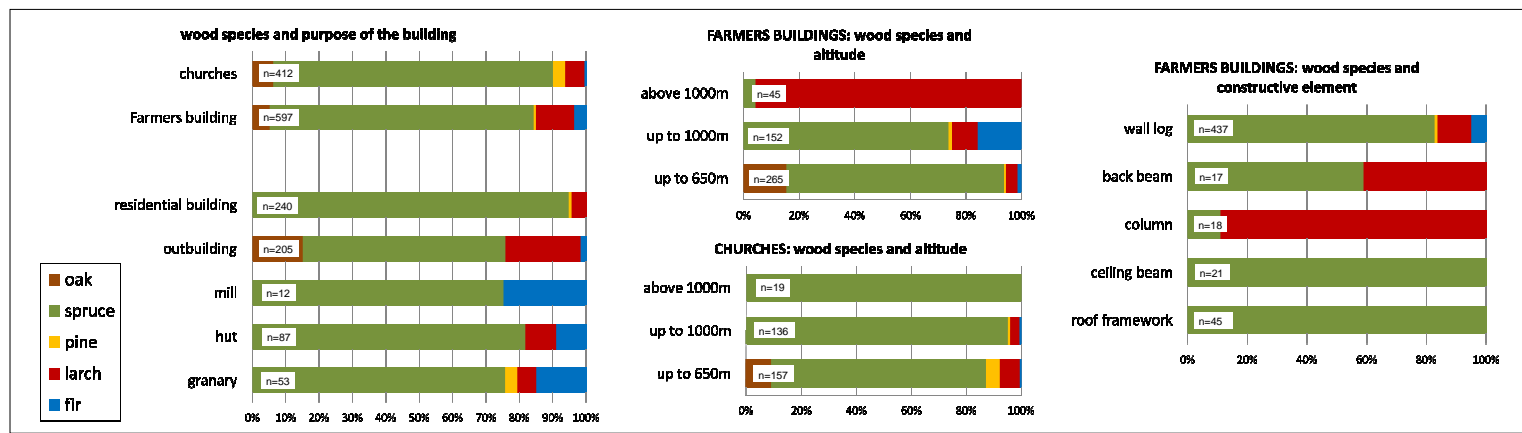


Fig. 1: Wood species used for construction timber for various purposes, in different altitudes.

### Ring Width

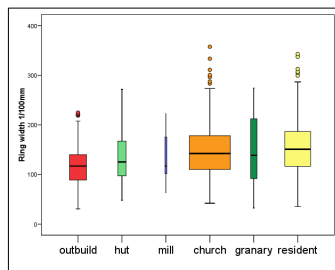


Fig. 2: All categories of farmers building listed from the lowest to the highest mean value of ring width

Ring width measurements of all churches and all categories of farmers buildings have been analysed. The significantly lowest ring width was found in outbuildings which are by trend small buildings. Large buildings as churches and residential buildings were made out of wood with larger ring width, as it is the case in fast growing, large trees. Hard to interpret is the high variation in ring width of granaries. As the variation of wood species in granaries was very high too, it seems as if there was another criteria for selecting wood for these storage buildings (fig. 2).

### Years of wood supply

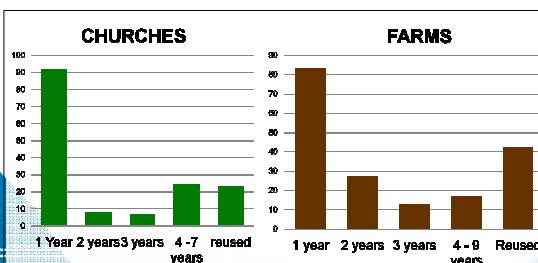


Fig. 3: Time of wood supply to build churches in comparison to farmhouses

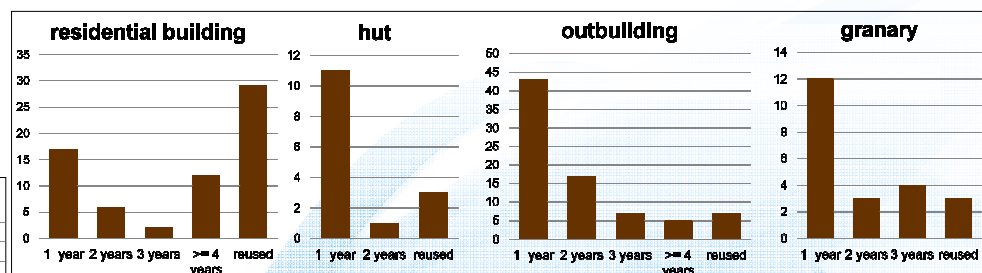


Fig. 4: Time of wood supply is shown separately for all categories of farmers building

Most buildings (farmhouses as well as churches) were built from wood, which was harvested and used within one year. For churches 60% of the wood was used within one year, only 15 and 13% within 2 and 3 years. In farmers buildings the percentage of wood used within 2 or 3 years is higher than in churches and also a high percentage of reused wood was taken. The highest amount of reused wood was found in large residential houses, where a high amount of wood is needed (fig. 3 and 4).

### Forest utilization: Pollarding

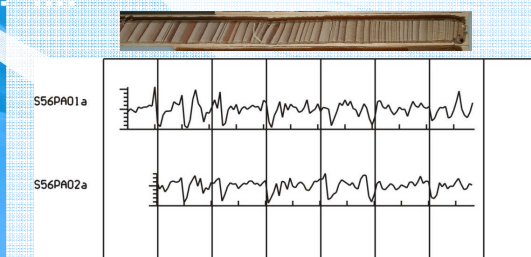


Fig. 2: Ring width curve and drill core, which show narrow rings caused by pollarding

By measuring tree rings of construction timber in farmhouses, a characteristic pattern often arises. Every 7 to 25 years, unusual small rings are visible, which suspect pollarding or leave harvesting. That means that almost all branches up to the top were used to feed or to bed the animals of the farm. Noticeable was one farmhouse where 70% of all beams were made out of leave harvested trees. On those samples the climate signal used for dating timber almost disappears.