

Contribution 203 in session “Forest operations: environmental concerns and natural hazards”

### **Application of fertilizer spreaders for wood ash utilization**

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In Austria the use of “green” energy produced by biomass power plants causes more than 350,000 tons of ash per year. To prevent these nutrient rich “secondary raw material” from being landfilled for millions of Euros, methods for wood ash utilization have to be established. The application as fertilizer is obvious and has been common for a very long time. The boundaries for using wood ash as a fertilizer in forests are legal constraints, the economical application and the custom-built spreading technology which have to be adapted for this special operation.

For ground based spreading in areas with an inclination up to 30% a vertical spinner-type spreader mounted on a Reform Muli T7 was used. In steep terrain a carriage mounted municipal spreader with an autonomous engine operated by a cable yarder was used. Field trials were carried out to analyse the spread pattern related to the used technology and the wood ash properties.

For the spreading no special treatment of the ash was required and no major adaptation of the spreading devices to guarantee cost-efficient application was necessary. The field test shows that spreading widths up to 24 meter in passable terrain and up to 14 meter under steep conditions are achievable without adaptation. In a final step the process chain of the spreading trials was programmed in VENSIM model to optimize the logistical situation and to reduce idle times in forest operations.