

Applied Period Presentation

**Estimation of above ground leafless first
rotation biomass of hybrid -275 poplar from
an agroforestry plot at Breisach, Freiburg,
Germany.**

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Objectives

- Development of a ratio of fresh to dry biomass of Hybrid 275
- To estimate the above ground leafless biomass of poplar Hybrid-275 using direct method separated in different diameter classes for:
 - Stem
 - Branches
 - Buds
- To determine Chemical elements in wood and bark

Materials and Methods

Location and Climate of the Project area

- The area is situated in the upper Rhine valley, west of the Kaiserstuhl and northeast of Breisach in the former alluvial fan of the Rhine.
- Mean annual temperature is 9,9°C and 19°C is the mean temperature in July.
- Mean annual precipitation is 811mm

Climate Diagram

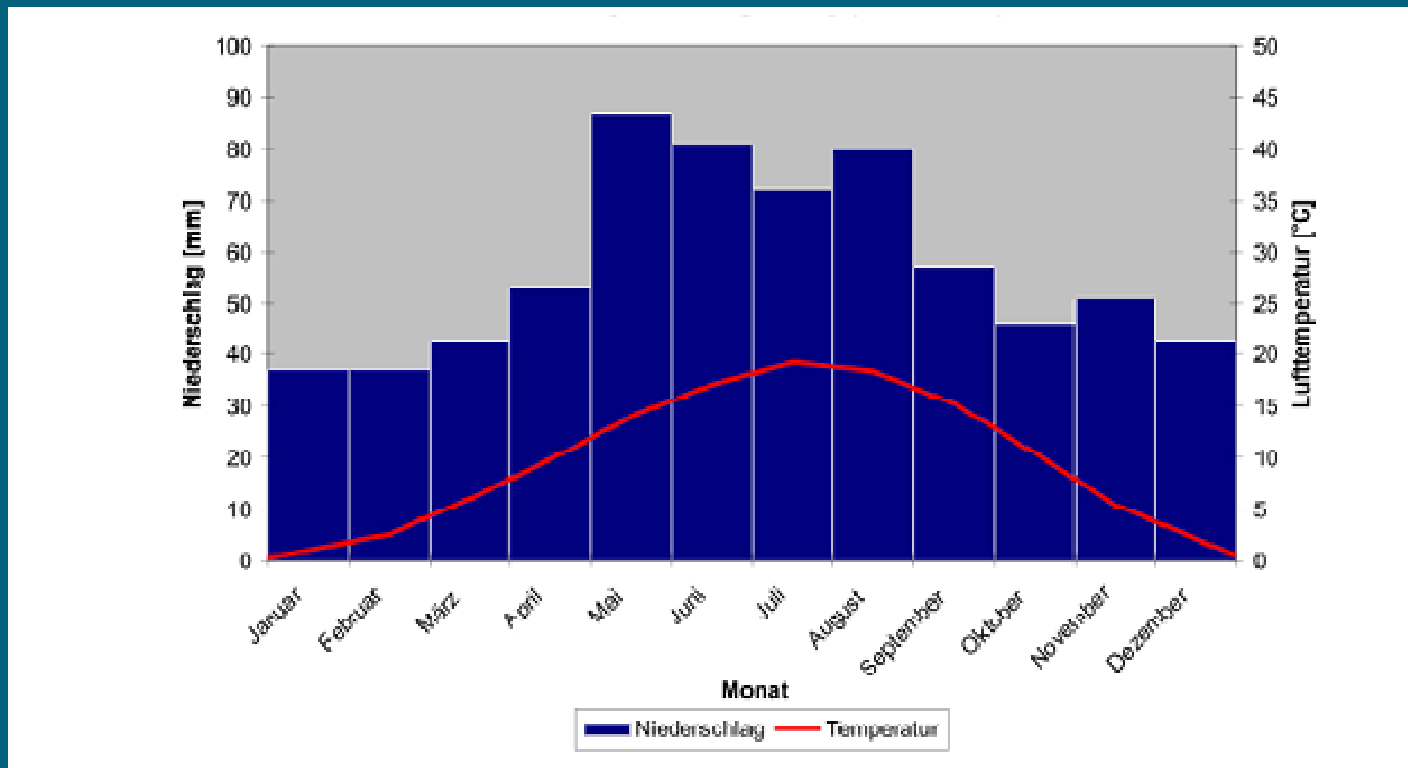


Figure 1: Climate diagram for Vogtsburg at the Kaiserstuhl. The mean annual air temperature is 9,9°C, the annual precipitations are 811 mm (Graph: M. Brix 2007)

Start of Work

- All trees were marked with number and north direction at the field.
- A complete harvest was carried out on the research plot, so all trees of Hybrid 275 are included in this research
- Also their position in respect to their neighbors and browsing status was recorded.. The north face of the stem was marked for further stem disk analysis.

- Measurements

- Stems

- The diameters of the trees were measured at root collar and at breast height position.
- Total tree length of the felled trees was measured.
- The tree was cut into different height class viz. 0-1.3m, 1.3-3m, 3-5m, 5-7.5m.
- Branches and twigs out of the different stem height classes were separated.
- Stem discs were taken at 1.3, 3, 5m and 7.5 meter height classes of the tree.
- Stem discs were also taken at different diameter classes (1, 2, 3,...cm) for analysis.
- Fresh weight for every stem discs and stem parts according diameter class were measured with an electronic balance.

- Measurements
- *Branches*
- Branches of different height class were separated and further separation was made for diameter class of 0-1, 1-2 and 2-3 cm.
- All the branches of the same tree of respective diameter class were mixed together properly and sampling was made for each diameter class, and weighed for fresh weight.

- Measurements ...

- *Buds*

- Buds were also collected and fresh weight was taken for each height class.

- *Bark*

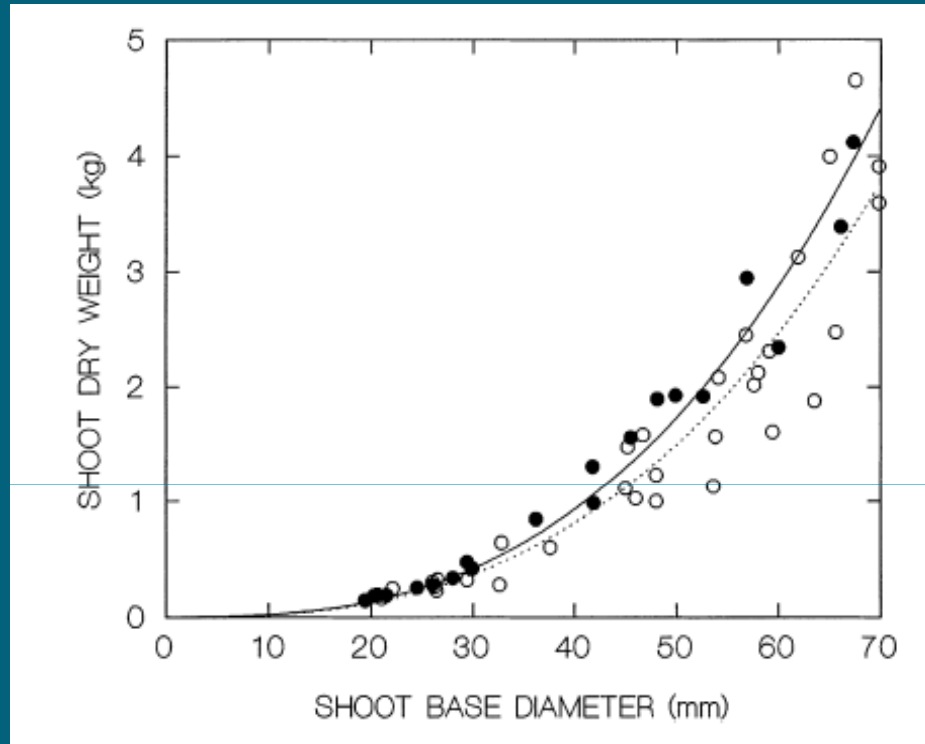
- Bark- was collected at 1.3m, 5 m and 7m height for bark and wood content analysis.

- *Conversion factor calculation*

- The conversion factors of fresh-weight to oven-dry weight of above ground components (branch and stem) of *Poplar* hybrid will be calculated from the fresh weight and oven-dry weight of respective plant components.

- *Determination of allometric relationship*
- Oven-dry weights of different components will be calculated from the conversion factor and fresh weight of the respective components of the selected plants. Different regression equations will be used for the determination of allometric relationship between Diameter or GCH and oven-dry biomass of plant components. Significance test of regression equations will be done by using suitable statistical software.

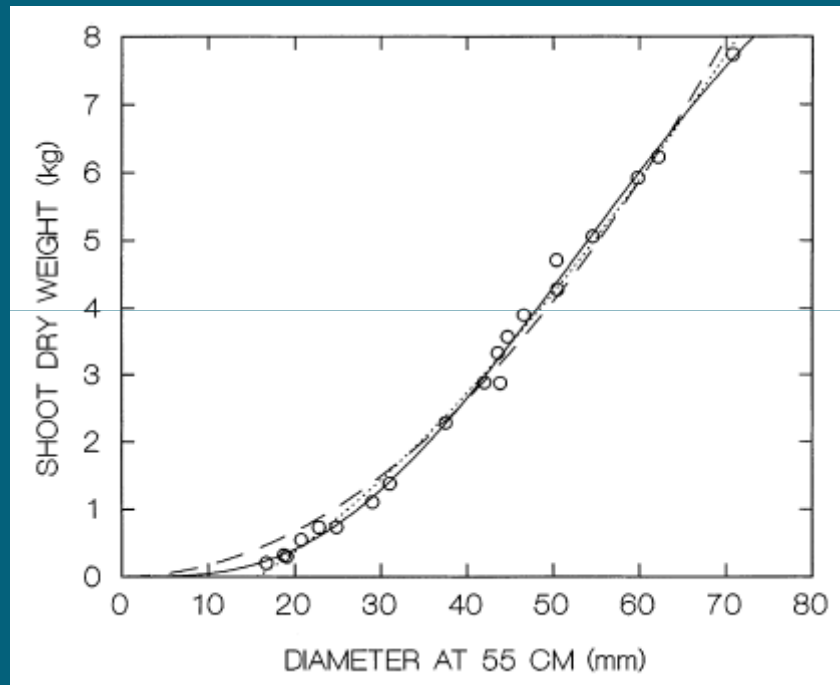
What is looked for?



The relation between stem dry weight and diameter at stem base in a 10-year old stand of *Alnus glutinosa* differs between shoots from the interior of the stand (black circle) and those from the border rows (white circles),

From: Verwijst, T. and Björn, T.(1999)

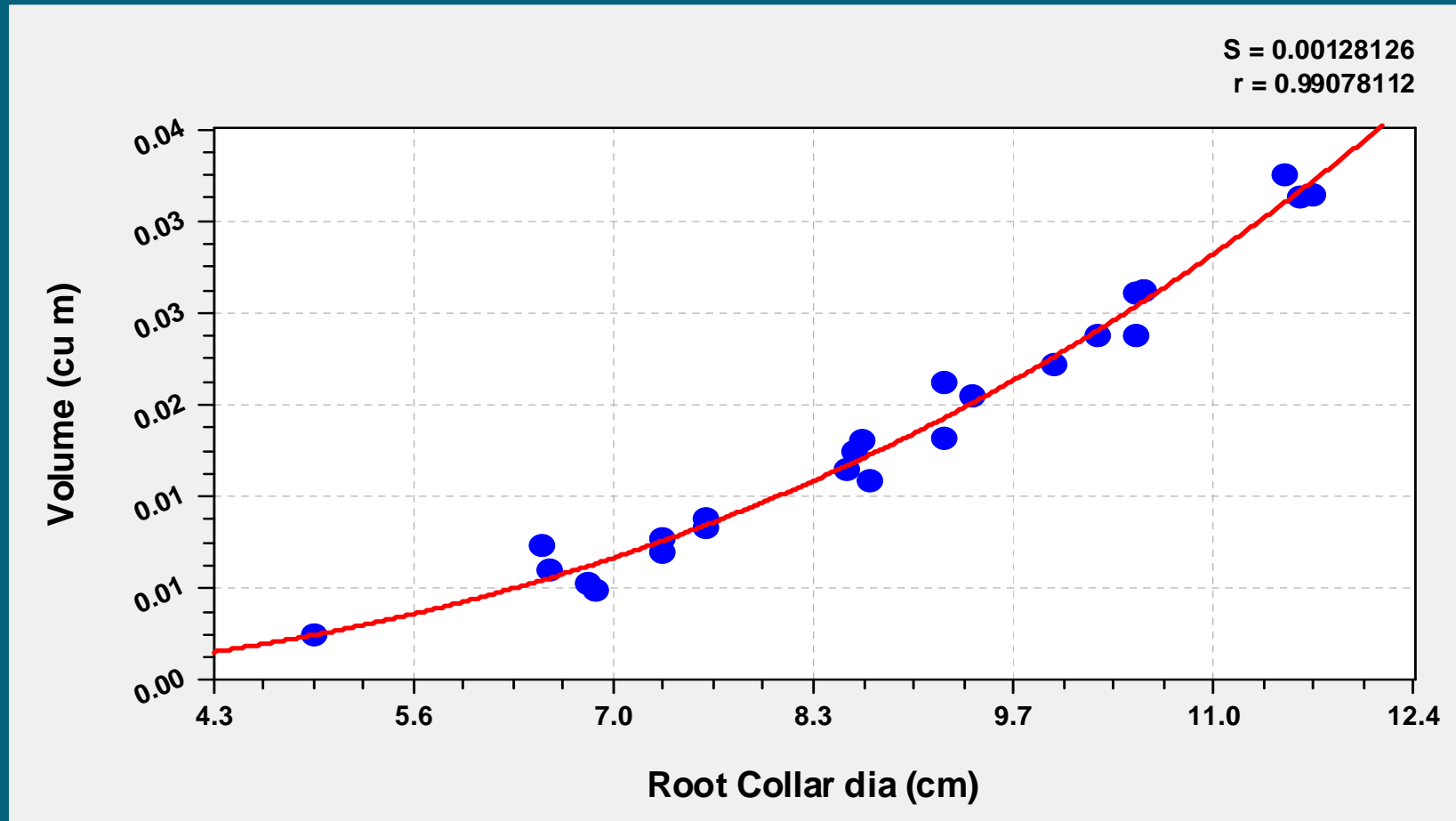
What is looked for?.....



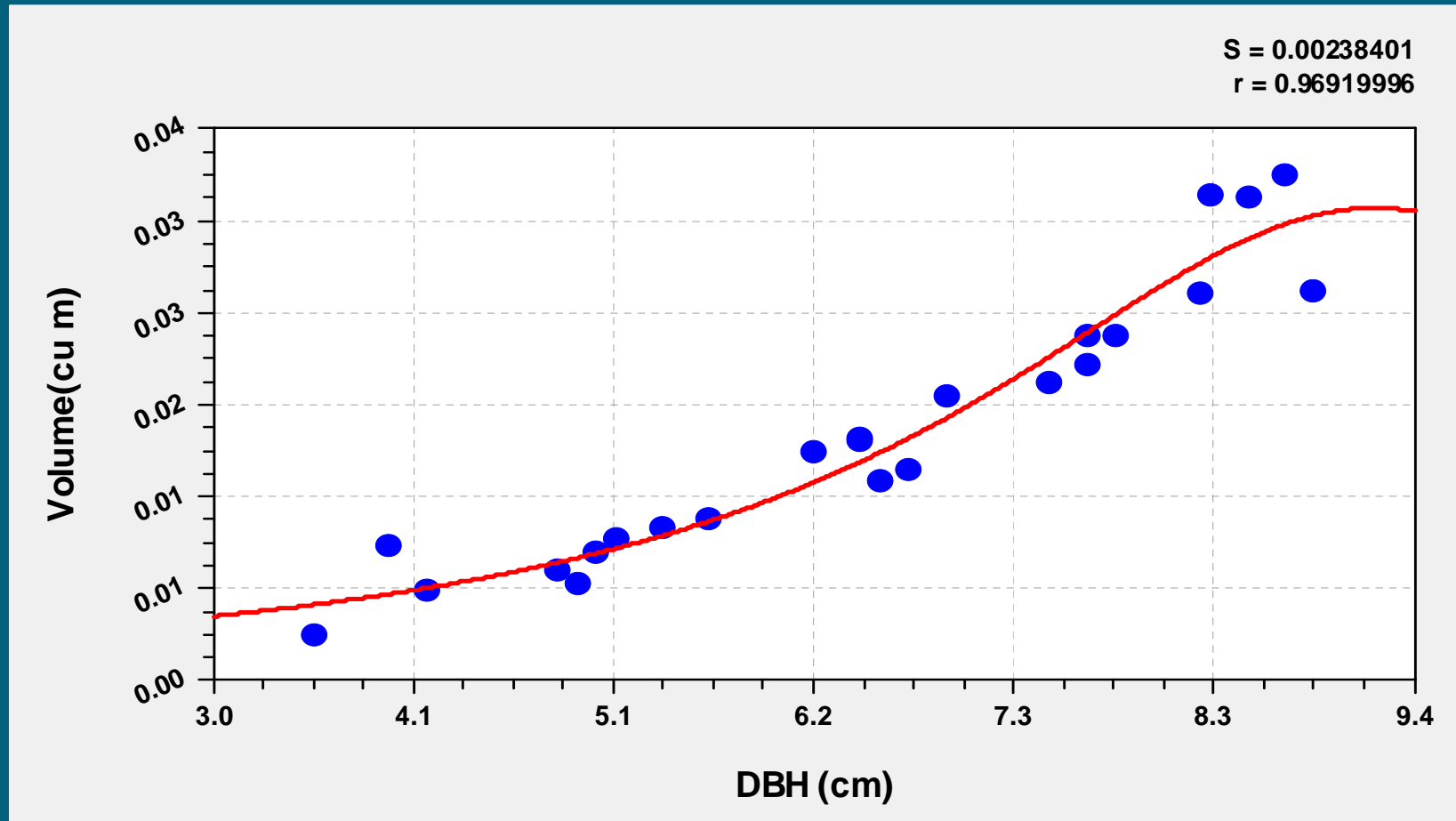
The relation between shoot dry weight and diameter of *Salix viminalis* at 55 cm above the soil surface fitted with a nonzero intercept exponential model (.....), with a zero-intercept exponential model (- - -) and with a variable allometric model.

From: Verwijst, T. and Björn, T.(1999)

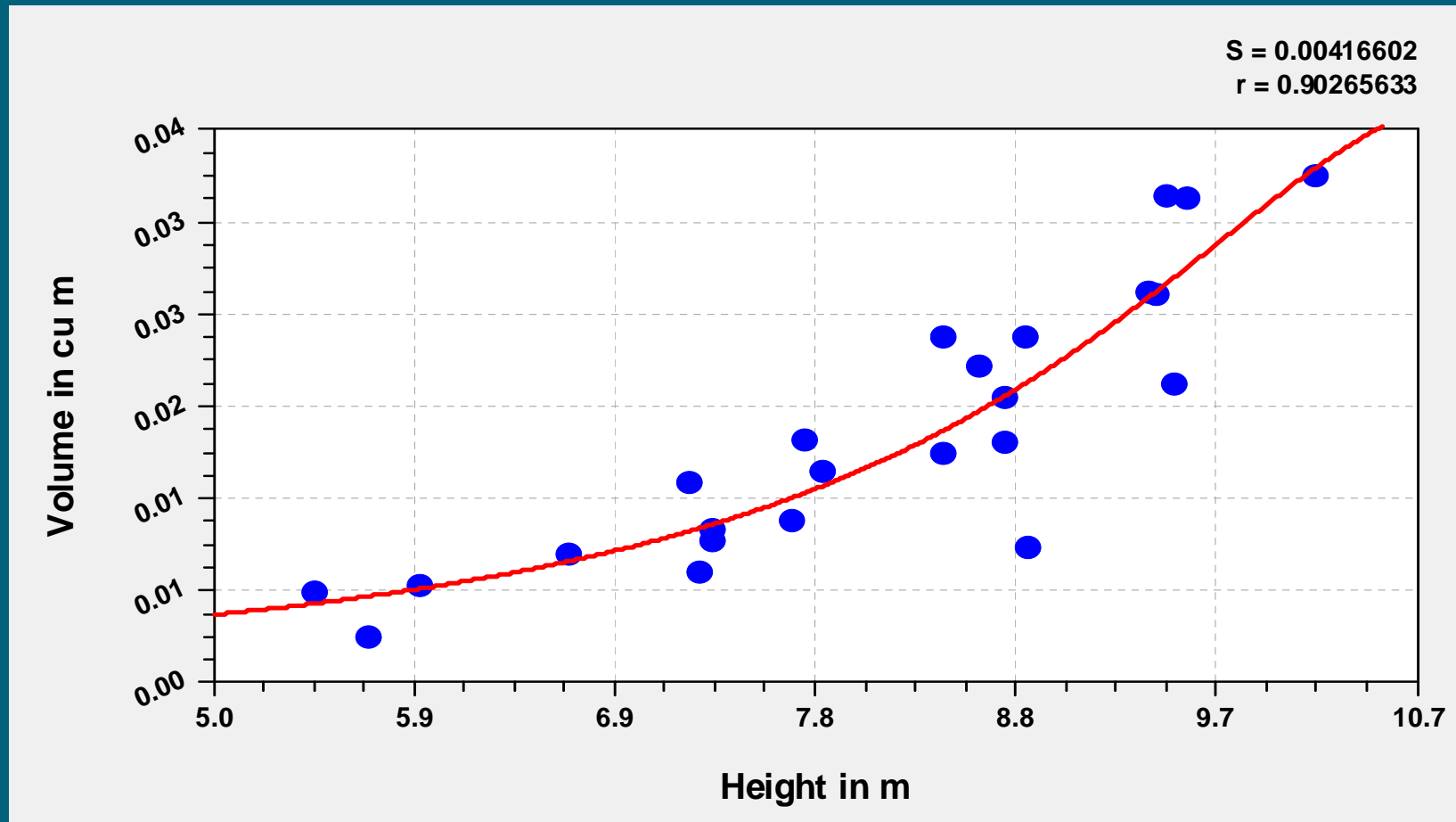
Root collar dia vs volume



DBH vs Volume



Height vs Volume



Reciprocal Quadratic

Conclusion

Data collection is yet under process. After completion of this study, it is expected that, the study will provide comprehensive information about the Poplar Hybrid-275.

Merry Christmas
Thank You
Froehliche
Weihnachten!

ধন্যবাদ