



Rheinland-Pfalz

ZENTRALSTELLE
DER FORSTVERWALTUNG

QUALIFICATION – DIMENSIONING

Forest Management Strategy



Landesforsten
Rheinland-Pfalz



QUALIFICATION – DIMENSIONING

MANAGEMENT IN FAVOUR OF THE TRUE, THE BEAUTIFUL, THE NOBLE

■ QD (Qualification – Dimensioning).....with respect for the true

Woodlands are our most diverse natural ecosystems. They mark our landscapes. When presenting a high level of naturalness by their abundance in species and structures, they are of particular ecological value. Such woodland offers identity to man.

Nature provides our landscapes of Rhineland-Palatinate with a cover of deciduous woodland in a large variety with beech forests prevailing by far. What is typical for us, is unique in global view: Vast forests dominated by beech are nowhere else to be admired but in Western and Central Europe.

ESTABLISHING PHASE

■ QD (Qualification – Dimensioning).....patiently for the beautiful

Such woodlands which are characteristic for their landscape feature a beauty of their own. They impress us with their uniformity on the whole whilst showing in detail most varying appearances. In many places, our present forests do not correspond to these characteristics. Instead of being in a hurry, close to nature management constantly and patiently follows the orientation given by the natural dynamics.

Close to nature management is about nothing less than obtaining the various commodities and services forests may provide in a most careful manner. So we do not operate on stand level but we rather set local influences without perceptibly altering the forest.

■ QD (Qualification – Dimensioning).....striving for the noble

Wood is a biomaterial growing in our forests. It may be converted to energy in ecologically compatible ways. Decomposed into its fibres, wood may be processed in combination with other materials to modern products. With managing close to nature, wood will be available for such mass use in great quantity but our aim reaches far beyond: It is wood for class use. We strive for the noble! By its naturally grown inner structure, wood impresses by itself. Its uniqueness makes even the smallest surface inimitable. Thus, wood attains highest value in its natural appearance which has been fascinating man ever since.

We strive for the production of typical premium quality wood in the knotless boles of thick trees with strong, solid branches forming huge, magnificent crowns. Woodlands with most beautiful trees of our European species supplying premium quality wood bestows world-wide uniqueness.

Beautiful, authentic woodlands: **our vision!**

Premium quality wood growing in forests managed close to nature: **our objective!**

Qualification-Dimensioning, **QD: our management strategy!**

Definition:

During the first years of their life, young trees grow after germination or plantation in their establishing phase. This phase is accomplished as soon as the young tree has definitely surpassed the endangering effects of competing vegetation and browsing deer.

Objective:

At the end of the establishing phase, the basic requirements for premium quality production are to be fulfilled.



Photo 1: Adhesive tape prevents from deer browsing



Photo 2: Advance clump plantation of beech in a pure spruce stand

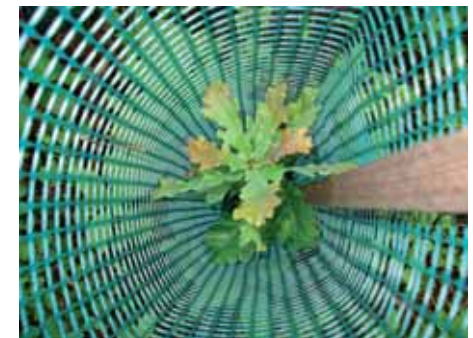


Photo 3: Young oak in protective shelter

THE CLUMP

Diameter: 5 to 7 m

Minimum distance (center to center): 12 m

Number of young trees:

20 light demanding trees + 10 shade tolerant trees

or

40 shade tolerant trees

Our method: Concentration makes up the excellence!

Clumps are the hotbeds for regeneration in forest where young trees can grow up in sufficient density. Clump diameters of 5 to 7 m and distances from clump to clump center of 12 to 18 m are advantageous both with regard to ecology as to economics.

Operations to hit the mark

Any operation in the establishing phase gets to the point and is strictly confined to the clumps. Thus, flagging the clumps is compulsory.

In order to dispose of enough premium crop trees later on, we just perform the specific minimum within the clumps and only there; to the point - neither more nor less!

Beyond the clumps, as this is on well over 80 % of the area, nature is left to its own. All the better, if extra trees establish there spontaneously for economical or ecological premium purposes!



Photo 4: Crowding fosters branch die-back!



Picture 1: Flagged clumps after windthrow

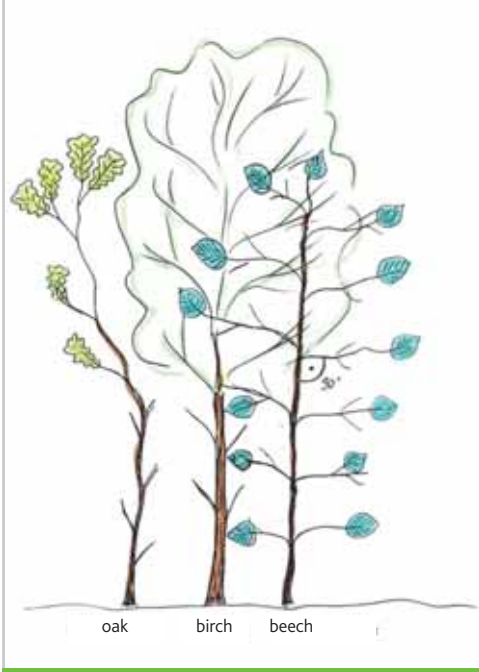
QUALIFICATION PHASE

Definition:

The qualification phase begins once young trees have surpassed competing vegetation and get in close crowding out contact to each other. The trees accelerate their height growth and natural branch die-back sets in.

Objective:

In the qualification phase, crowding enhances natural differentiation. We aim at well-shaped supervitals in sufficient number and repartition for later premium production. We call such trees options. On these options, we want branch die-back to advance rapidly and without interruption.



Picture 2: Oak, birch and beech respond differently to shading

The course of nature: Which one qualifies which other?

Any species will not qualify (prune) any species. Aboveground interactions are driven by light demand and shading capability. Lateral pressure exerted by beech qualifies the light demanding oak and birch very efficiently, whereas the latter are not able to give branch die-back to beech.

The most vital will win

During the qualification phase, full attention is paid to the well-shaped supervitals (options). Operations are only justified in case of impending loss or prejudice of options, which otherwise would not remain in sufficient number and repartition.

Go in and find out!

After the onset of branch die-back, access lanes just wide enough to let a person pass are opened every 20 m. This allows for easy observation and forecast of ongoing growth dynamics.

About bending, cracking and girdling

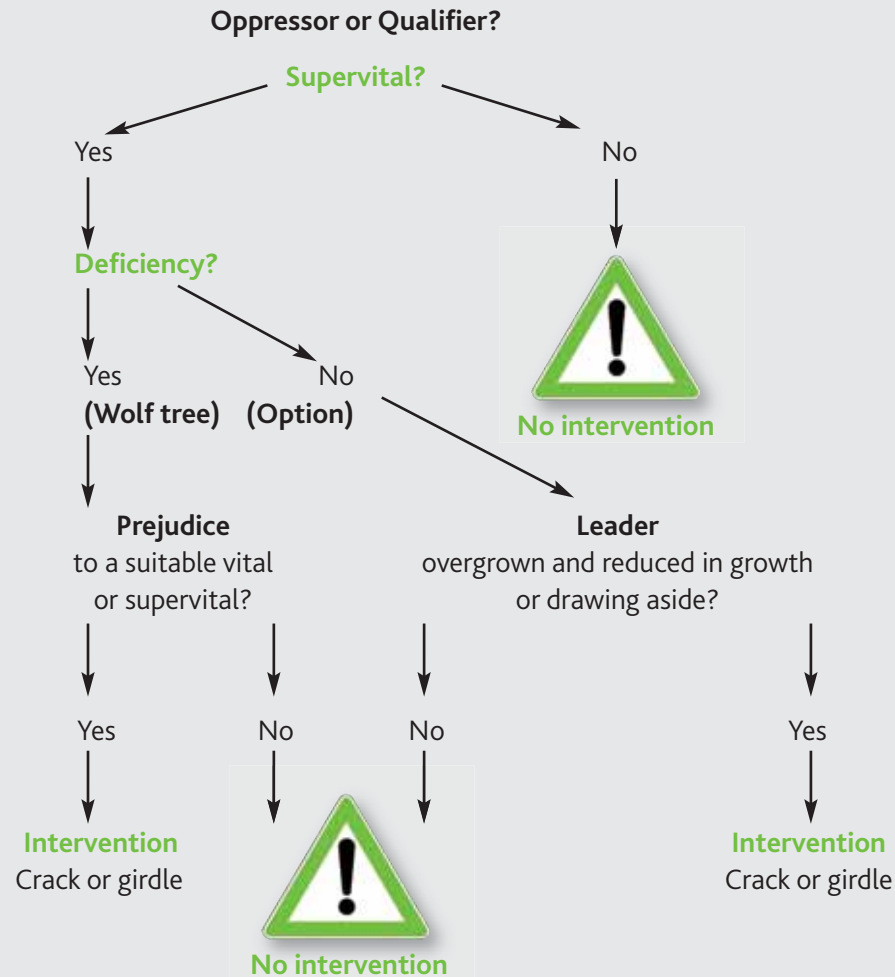
In the early qualification phase, repelling of undesirable supervitals (wolf trees) is operated by cracking, later on by girdling with a drawknife and a wire brush, but only in support of a well-shaped vital. Cullings of any kind expose the option to too much light, disrupt its branch die-back and are thus omitted.

Photo 5: Girdling a wolf tree

Photo 6: Access lanes are fundamental for expedient practice



Check criteria for any individual case



Tools:

instead of power saw and brushcutter
drawknife and wire brush

DIMENSIONING PHASE

Definition:

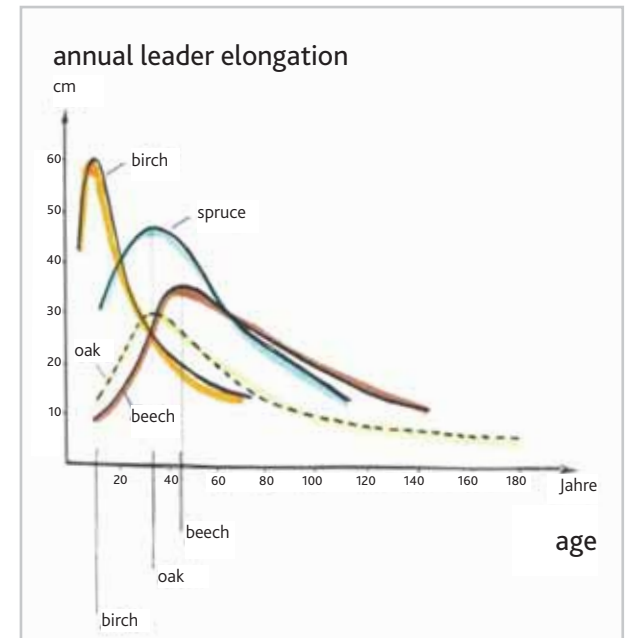
After branch die-back has come up to a certain height, the dimensioning phase commences. A clear bole of about 25 % relating to the final height is our benchmark for switching over to the dimensioning phase. This phase ends, when crown expansion seriously slows down.

Objective:

During the dimensioning phase, the potential of crop trees for the growth of premium clear wood is to be entirely deployed. By our management operations, we want these crop trees to get real thick and firm.

Our method: Taking full advantage of natural dynamics

The particular growth characteristic of any species sets the beginning of the dimensioning phase and the time frame in which substantial crown enlargement might be enhanced.



Picture 3: Species with different height growth dynamics

The go-ahead for dimensioning is on

for	at the age of
Aspen	9 to 12 years
Birch, Alder, Larch	12 to 15 years
Cherry, Ash, Maple, Pine	18 to 22 years
Oak, Spruce, Douglas fir	25 to 30 years
Beech, Fir	35 to 40 years

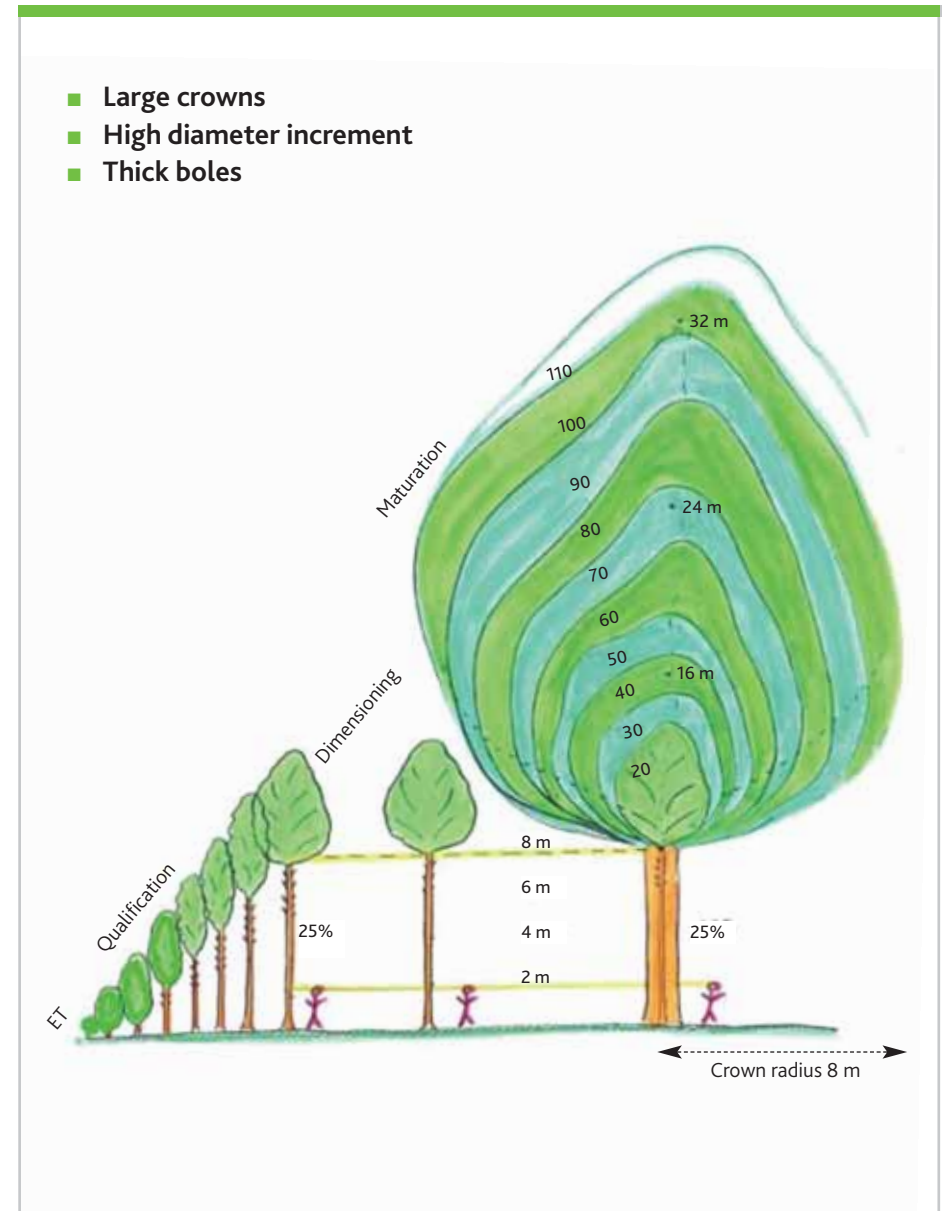
The time span for crown expansion is confined!

- Large crowns
- High diameter increment
- Thick boles

Thick trees result from the early expansion of large crowns. The crown is dimensioned and branch die-back is definitely stopped till harvest.

The permanent crown basis is the trademark of QD.

Photo 7: Birch in the dimensioning phase



Picture 4: The crown base is retained up till harvest

There can be only one...

Selection and flagging of crop trees is on vitality coupled with high quality. Minimum distances between crop trees range from 8 m (rowan) to 16 m (beech on excellent site). During the dimensioning phase, all management operations are strictly limited to the removal of the oppressors for the crown release of the only premium crop trees.

We call oppressor any tree coming in touch with the crown periphery of a premium crop tree. It is absolutely necessary to cut any oppressor exceeding by its shading capability the shade tolerance of the premium crop tree.

Photo 8: Dimensioning of a 38 years old oak



Photo 9: Spruce pruned up to its crown base after crown release



Amplify as much light as required

Consequent removal of the oppressors retains the crown base of the premium target tree and procures permanent light access to its crown.



Photo 10: Full light access to the oak after removal of its oppressors

Assistance if needed

Pruning of coniferous as well as deciduous trees accompanies in case of need the selection and first release of the premium crop tree.

Photo 11: By the use of ladder systems, pruning can be executed in top quality





Photo 12: Beech in its maturation phase – beautiful and precious



Photo 13: Series of short shoots are typical for pines in their maturation phase

MATURATION PHASE

Definition:

The maturation phase sets on when a tree has passed about 75 to 80 % of its final height. From this time on, its height growth diminishes considerably and with this, its potential for crown expansion is only small. Crown touch between trees in maturation hardly ever causes branch die-back. Such trees have come to tolerate each other.

Objective:

The maturation phase meets its achievement with the harvest of premium quality wood. At that time, the following generation should already be well established.

You can't teach an old dog new tricks

Decline in height growth is coupled with decline in lateral crown expansion. From this point on, it is essential to maintain value increment at high level and to prevent depreciation of the tree.

The crown drives increment

Even in the maturation phase, the crowns of trees having reached their target diameter are gently supported. For this, shade tolerant trees emerging from below are accurately removed.



Photo 14: Mature oak presenting the desired bole to crown ratio



Photo 15: The target is reached. Oak veneer boles waiting for their buyers



Photo 16: Birches with clear and sound wood - sought after by the veneer industry

Imprint

This booklet has been written by:

Bernhard Hettesheimer, Olaf Böhmer, Manfred Witz

– forest management trainers of the State's Forest Service of Rhineland-Palatinate –

2. Edition 2009

Preface: Georg Josef Wilhelm

Photos: Ingrid Lamour, Bernhard Hettesheimer, Olaf Böhmer, Manfred Witz

Pictures: Helmut Rieger

Layout: Gellert und Partner Marketing Service, Bad Kreuznach

Web page: www.waldbautraining.wald-rlp.de



Photo 17: Well structured forest - all four phases are present

Coming full circle

Not later than in the coming up maturation phase, trees of the following generation ought to establish and then qualify. With the harvest of the first premium quality tree, the circle comes full.





Rheinland-Pfalz

ZENTRALSTELLE
DER FORSTVERWALTUNG

Le Quartier-Hornbach 9
67433 Neustadt/Weinstraße

www.wald-rlp.de

www.waldbautraining.wald-rlp.de